



US012120394B2

(12) **United States Patent**  
**Hamano et al.**

(10) **Patent No.:** **US 12,120,394 B2**  
(45) **Date of Patent:** **Oct. 15, 2024**

(54) **MAINTAINING A USER PROFILE BASED ON DYNAMIC DATA**

(71) Applicant: **Rovi Guides, Inc.**, San Jose, CA (US)

(72) Inventors: **Royce Matsusei Hamano**, Los Angeles, CA (US); **Gevorg Gevorgyan**, Glendale, CA (US)

(73) Assignee: **Rovi Guides, Inc.**, San Jose, CA (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/217,023**

(22) Filed: **Mar. 30, 2021**

(65) **Prior Publication Data**

US 2021/0219019 A1 Jul. 15, 2021

**Related U.S. Application Data**

(63) Continuation of application No. 16/358,420, filed on Mar. 19, 2019, now Pat. No. 10,992,987, which is a continuation of application No. 14/667,049, filed on Mar. 24, 2015, now Pat. No. 10,284,914, which is a continuation of application No. 14/248,216, filed on (Continued)

(51) **Int. Cl.**

**G06F 3/00** (2006.01)  
**G06F 13/00** (2006.01)  
**G06F 21/62** (2013.01)  
**H04N 5/445** (2011.01)  
**H04N 21/466** (2011.01)  
**H04N 21/472** (2011.01)  
**H04N 21/482** (2011.01)  
**H04N 21/643** (2011.01)  
**H04N 21/6543** (2011.01)

(52) **U.S. Cl.**

CPC ..... **H04N 21/4661** (2013.01); **G06F 21/6218** (2013.01); **H04N 21/4667** (2013.01); **H04N 21/4668** (2013.01); **H04N 21/472** (2013.01); **H04N 21/4826** (2013.01); **H04N 21/64322** (2013.01); **H04N 21/6543** (2013.01)

(58) **Field of Classification Search**

CPC ..... H04N 21/4661; H04N 21/4667; H04N 21/4668; H04N 21/472; H04N 21/4826; H04N 21/64322; H04N 21/6543  
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

252,873 A 1/1882 Freese  
1,261,167 A 4/1918 Russell  
(Continued)

FOREIGN PATENT DOCUMENTS

AU 731010 7/1998  
AU 733993 2/1999  
(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 09/332,244, filed Jun. 11, 1999, Ellis et al.  
(Continued)

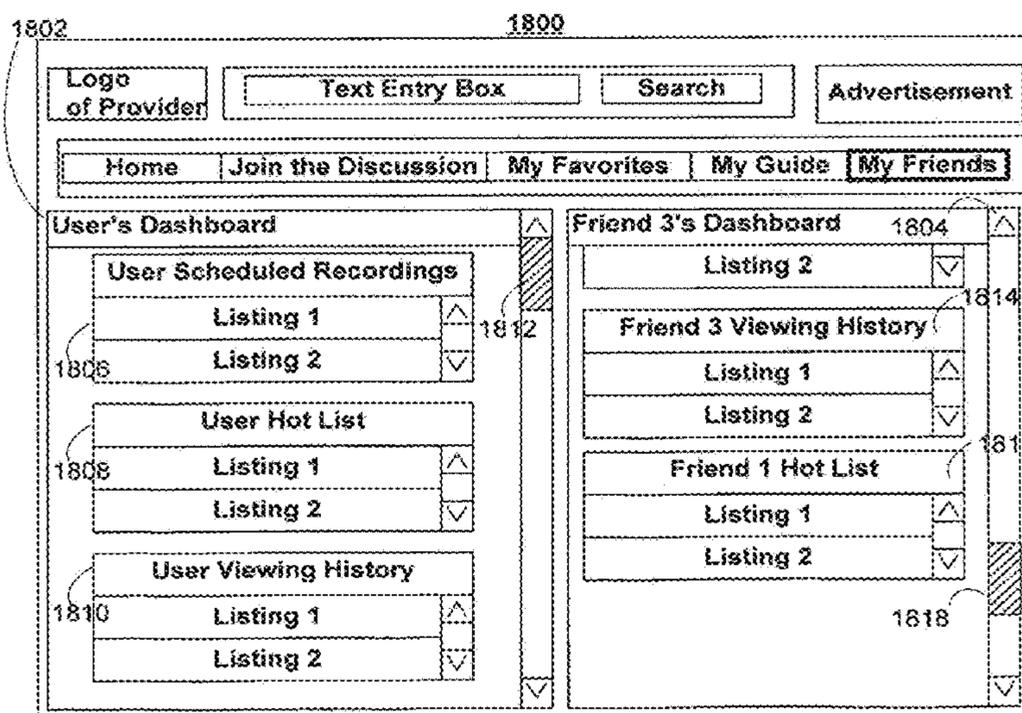
*Primary Examiner* — Gigi L Dubasky

(74) *Attorney, Agent, or Firm* — HALEY GUILIANO LLP

(57) **ABSTRACT**

The present invention allows users to interact with people, who have interacted with other people, and obtain media files and recommendations from those having common interests, thereby creating interactive media communities and spawning electronic social networks based on media and other types of electronic entertainment.

**21 Claims, 14 Drawing Sheets**



**Related U.S. Application Data**

Apr. 8, 2014, now abandoned, which is a continuation of application No. 11/986,463, filed on Nov. 21, 2007, now Pat. No. 8,943,539.

(56)

**References Cited**

## U.S. PATENT DOCUMENTS

3,440,427 A	4/1969	Kammer	4,495,654 A	1/1985	Deiss
3,492,577 A	1/1970	Reiter et al.	4,496,171 A	1/1985	Cherry
3,493,674 A	2/1970	Houghton	4,496,976 A	1/1985	Swanson et al.
3,729,581 A	4/1973	Anderson	4,510,623 A	4/1985	Bonneau et al.
3,833,757 A	9/1974	Kirk, Jr. et al.	4,520,404 A	5/1985	Von Kohorn
3,891,792 A	6/1975	Kimura	4,523,228 A	6/1985	Banker
3,936,868 A	2/1976	Thorpe	4,527,194 A	7/1985	Sirazi
3,996,583 A	12/1976	Hutt et al.	4,531,020 A	7/1985	Wechselberger et al.
4,004,085 A	1/1977	Makino et al.	4,533,910 A	8/1985	Sukonick et al.
4,016,361 A	4/1977	Pandey	4,536,791 A	8/1985	Campbell et al.
4,026,555 A	5/1977	Kirschner et al.	4,547,804 A	10/1985	Greenberg
4,031,548 A	6/1977	Kato et al.	4,554,584 A	11/1985	Elam et al.
4,045,777 A	8/1977	Mierzwinski et al.	4,555,775 A	11/1985	Pike
4,052,719 A	10/1977	Hutt et al.	4,566,034 A	1/1986	Harger et al.
4,058,830 A	11/1977	Guinet et al.	4,573,072 A	2/1986	Freeman
4,079,419 A	3/1978	Siegle et al.	4,587,520 A	5/1986	Astle
4,081,753 A	3/1978	Miller	4,595,951 A	6/1986	Filliman
4,081,754 A	3/1978	Jackson	4,595,952 A	6/1986	Filliman
4,096,524 A	6/1978	Scott	4,598,288 A	7/1986	Yarbrough et al.
4,134,127 A	1/1979	Campioni	4,602,279 A	7/1986	Freeman
4,139,860 A	2/1979	Micic et al.	4,605,964 A	8/1986	Chard
4,150,254 A	4/1979	Schussler et al.	4,605,973 A	8/1986	Von Kohorn
4,156,850 A	5/1979	Beyers, Jr.	4,620,229 A	10/1986	Amano et al.
4,161,728 A	7/1979	Insam	4,622,545 A	11/1986	Atkinson
4,162,513 A	7/1979	Beyers, Jr. et al.	4,635,109 A	1/1987	Comeau
4,170,782 A	10/1979	Miller	4,635,121 A	1/1987	Hoffman
4,186,413 A	1/1980	Mortimer	4,641,205 A	2/1987	Beyers, Jr.
4,203,130 A	5/1980	Doumit et al.	4,677,466 A	6/1987	Lert, Jr. et al.
4,205,343 A	5/1980	Barrett	4,685,131 A	8/1987	Horne
4,218,698 A	8/1980	Bart et al.	4,689,022 A	8/1987	Peers et al.
4,228,543 A	10/1980	Jackson	4,691,351 A	9/1987	Hayashi et al.
4,231,031 A	10/1980	Crowther et al.	4,694,490 A	9/1987	Harvey et al.
4,233,628 A	11/1980	Ciciora	4,701,794 A	10/1987	Froling et al.
4,249,211 A	2/1981	Baba et al.	4,704,725 A	11/1987	Harvey et al.
4,249,213 A	2/1981	Imaide et al.	4,706,121 A	11/1987	Young
4,261,006 A	4/1981	Weintraub et al.	4,712,105 A	12/1987	Kohler
4,264,924 A	4/1981	Freeman	4,714,919 A	12/1987	Foster
4,264,925 A	4/1981	Freeman et al.	4,718,107 A	1/1988	Hayes
4,270,145 A	5/1981	Farina	RE32,632 E	3/1988	Atkinson
4,271,532 A	6/1981	Wine	4,745,549 A	5/1988	Hashimoto
4,276,597 A	6/1981	Dissly et al.	4,748,618 A	5/1988	Brown et al.
4,283,787 A	8/1981	Chambers	4,750,036 A	6/1988	Martinez
4,288,809 A	9/1981	Yabe	4,750,213 A	6/1988	Novak
4,290,142 A	9/1981	Schnee et al.	4,751,578 A	6/1988	Reiter et al.
4,305,101 A	12/1981	Yarbrough et al.	4,754,326 A	6/1988	Kram et al.
4,329,684 A	5/1982	Monteath et al.	4,760,528 A	7/1988	Levin
4,331,974 A	5/1982	Cogswell et al.	4,768,228 A	8/1988	Clupper et al.
4,337,480 A	6/1982	Bourassin et al.	4,772,882 A	9/1988	Mical
4,337,483 A	6/1982	Gulllou	4,775,935 A	10/1988	Yourick
4,344,090 A	8/1982	Belisomi et al.	4,785,408 A	11/1988	Britton et al.
4,367,559 A	1/1983	Tults	4,787,063 A	11/1988	Muguet
4,375,651 A	3/1983	Templin et al.	4,797,855 A	1/1989	Duncan, IV et al.
4,381,522 A	4/1983	Lambert	4,812,834 A	3/1989	Wells
4,388,645 A	6/1983	Cox et al.	4,814,883 A	3/1989	Perine et al.
4,390,901 A	6/1983	Keiser	4,821,102 A	4/1989	Ichikawa et al.
4,393,376 A	7/1983	Thomas	4,821,211 A	4/1989	Torres
4,405,946 A	9/1983	Knight	4,829,558 A	5/1989	Welsh
4,412,244 A	10/1983	Shanley, II	4,847,604 A	7/1989	Doyle
4,413,281 A	11/1983	Thonnart	4,847,700 A	7/1989	Freeman
4,420,769 A	12/1983	Novak	4,857,999 A	8/1989	Welsh
4,425,579 A	1/1984	Merrell	4,862,268 A	8/1989	Campbell et al.
4,425,581 A	1/1984	Schweppe et al.	4,864,429 A	9/1989	Eigeldinger et al.
4,429,385 A	1/1984	Cichelli et al.	4,873,623 A	10/1989	Lane et al.
4,439,784 A	3/1984	Furukawa et al.	4,882,732 A	11/1989	Kaminaga
4,449,249 A	5/1984	Price	4,884,223 A	11/1989	Ingle et al.
4,453,217 A	6/1984	Boivie	4,888,796 A	12/1989	Olivo, Jr.
4,466,017 A	8/1984	Banker	4,890,320 A	12/1989	Monslow et al.
4,477,830 A	10/1984	Lindman et al.	4,890,321 A	12/1989	Seth-Smith et al.
4,488,179 A	12/1984	Kruger et al.	4,893,238 A	1/1990	Venema
			4,894,789 A	1/1990	Yee
			4,899,136 A	2/1990	Beard et al.
			4,899,139 A	2/1990	Ishimochi et al.
			4,905,094 A	2/1990	Pocock et al.
			4,908,707 A	3/1990	Kinghorn
			4,908,713 A	3/1990	Levine
			4,908,859 A	3/1990	Bennett et al.
			4,914,517 A	4/1990	Duffield
			4,914,732 A	4/1990	Henderson et al.
			4,930,158 A	5/1990	Vogel

(56)

## References Cited

## U.S. PATENT DOCUMENTS

4,930,160 A	5/1990	Vogel	5,237,418 A	8/1993	Kaneko
4,931,783 A	6/1990	Atkinson	5,239,540 A	8/1993	Rovira et al.
4,935,865 A	6/1990	Rowe et al.	5,245,420 A	9/1993	Harney et al.
4,937,821 A	6/1990	Boulton	5,247,347 A	9/1993	Litteral et al.
4,937,863 A	6/1990	Robert et al.	5,247,364 A	9/1993	Banker et al.
4,939,507 A	7/1990	Beard et al.	5,247,580 A	9/1993	Kimura et al.
4,942,391 A	7/1990	Kikuta	5,253,066 A	10/1993	Vogel
4,959,720 A	9/1990	Duffield et al.	5,253,067 A	10/1993	Chaney et al.
4,963,994 A	10/1990	Levine	5,260,778 A	11/1993	Kauffman et al.
4,977,455 A	12/1990	Young	5,260,788 A	11/1993	Takano et al.
4,987,486 A	1/1991	Johnson et al.	5,260,999 A	11/1993	Wyman
4,991,011 A	2/1991	Johnson et al.	5,283,639 A	2/1994	Esch et al.
4,991,012 A	2/1991	Yoshino	5,283,819 A	2/1994	Glick et al.
4,992,940 A	2/1991	Dworkin	5,285,278 A	2/1994	Holman
4,995,078 A	2/1991	Monslow et al.	5,301,028 A	4/1994	Banker et al.
4,996,642 A	2/1991	Hey	5,307,173 A	4/1994	Yuen et al.
4,998,171 A	3/1991	Kim et al.	5,311,423 A	5/1994	Clark
5,001,116 A	3/1991	Folkman et al.	5,313,282 A	5/1994	Hayashi
5,008,810 A	4/1991	Kessel et al.	5,317,403 A	5/1994	Keenan
5,008,853 A	4/1991	Bly et al.	5,319,445 A	6/1994	Fitts
5,014,125 A	5/1991	Pocock et al.	5,323,234 A	6/1994	Kawasaki
5,027,400 A	6/1991	Baji et al.	5,323,240 A	6/1994	Amano et al.
5,036,314 A	7/1991	Barillari et al.	5,325,183 A	6/1994	Rhee
5,038,211 A	8/1991	Hallenbeck	5,325,423 A	6/1994	Lewis
5,045,947 A	9/1991	Beery	5,335,277 A	8/1994	Harvey et al.
5,047,867 A	9/1991	Strubbe et al.	5,337,347 A	8/1994	Halstead-Nussioch et al.
5,058,160 A	10/1991	Banker et al.	5,343,239 A	8/1994	Lappington et al.
5,062,060 A	10/1991	Kolnick	5,347,167 A	9/1994	Singh
5,068,734 A	11/1991	Beery	5,347,632 A	9/1994	Filepp et al.
5,072,412 A	12/1991	Henderson, Jr. et al.	5,351,075 A	9/1994	Herz et al.
5,075,771 A	12/1991	Hashimoto	5,353,121 A	10/1994	Young et al.
5,083,800 A	1/1992	Lockton	5,357,276 A	10/1994	Banker et al.
5,091,785 A	2/1992	Canfield et al.	5,359,367 A	10/1994	Stockill
5,093,921 A	3/1992	Bevins, Jr.	5,359,601 A	10/1994	Wasilewski et al.
5,099,319 A	3/1992	Esch et al.	5,365,282 A	11/1994	Levine
5,103,314 A	4/1992	Keenan	5,367,316 A	11/1994	Ikezaki
5,105,184 A	4/1992	Pirani et al.	5,367,330 A	11/1994	Haave et al.
5,119,188 A	6/1992	McCalley et al.	5,369,605 A	11/1994	Parks
5,121,476 A	6/1992	Yee	5,373,288 A	12/1994	Blahut
5,123,046 A	6/1992	Levine	5,374,942 A	12/1994	Gilligan et al.
5,126,851 A	6/1992	Yoshimura	5,374,951 A	12/1994	Welsh
5,148,154 A	9/1992	Mackay et al.	5,377,317 A	12/1994	Bates et al.
5,151,782 A	9/1992	Ferraro	5,377,319 A	12/1994	Kitahara et al.
5,151,789 A	9/1992	Young	5,382,983 A	1/1995	Kwoh et al.
5,155,591 A	10/1992	Wachob	5,384,910 A	1/1995	Torres
5,155,806 A	10/1992	Hoeber et al.	5,387,945 A	2/1995	Takeuchi
5,157,768 A	10/1992	Hoeber et al.	5,398,074 A	3/1995	Duffield et al.
5,161,023 A	11/1992	Keenan	5,404,393 A	4/1995	Remillard
5,162,905 A	11/1992	Itoh et al.	5,410,326 A	4/1995	Goldstein
5,170,388 A	12/1992	Endoh	5,410,343 A	4/1995	Coddington et al.
5,172,111 A	12/1992	Olivo, Jr.	5,410,344 A	4/1995	Graves et al.
5,172,413 A	12/1992	Bradley et al.	5,410,367 A	4/1995	Zahavi et al.
5,177,604 A	1/1993	Martinez	5,412,720 A	5/1995	Hoarty
5,179,654 A	1/1993	Richards et al.	5,416,508 A	5/1995	Sakuma et al.
5,195,092 A	3/1993	Wilson et al.	5,424,770 A	6/1995	Schmelzer et al.
5,200,823 A	4/1993	Yoneda et al.	5,425,101 A	6/1995	Woo et al.
5,204,897 A	4/1993	Wyman	5,432,561 A	7/1995	Strubbe
5,206,722 A	4/1993	Kwan	5,434,626 A	7/1995	Hayashi et al.
5,210,075 A	5/1993	Scholz et al.	5,436,676 A	7/1995	Pint et al.
5,210,611 A	5/1993	Yee et al.	5,438,372 A	8/1995	Tsumori et al.
5,212,553 A	5/1993	Maruoka	5,440,678 A	8/1995	Eisen et al.
5,214,622 A	5/1993	Nemoto et al.	5,444,499 A	8/1995	Saitoh
5,216,515 A	6/1993	Steele et al.	5,446,919 A	8/1995	Wilkins
5,220,420 A	6/1993	Hoarty et al.	5,452,012 A	9/1995	Saitoh
5,223,924 A	6/1993	Strubbe	5,459,522 A	10/1995	Pint
5,224,060 A	6/1993	Ma et al.	5,461,415 A	10/1995	Wolf et al.
5,227,874 A	7/1993	Kohorn	5,465,113 A	11/1995	Gilboy
5,231,493 A	7/1993	Apitz	5,465,385 A	11/1995	Ohga et al.
RE34,340 E	8/1993	Freeman	5,469,206 A	11/1995	Strubbe et al.
5,233,423 A	8/1993	Jernigan et al.	5,477,262 A	12/1995	Banker et al.
5,233,654 A	8/1993	Harvey et al.	5,479,266 A	12/1995	Young et al.
5,235,415 A	8/1993	Bonicel et al.	5,479,268 A	12/1995	Young et al.
5,236,199 A	8/1993	Thompson, Jr.	5,479,497 A	12/1995	Kovarik
5,237,411 A	8/1993	Fink et al.	5,479,892 A	1/1996	Edwards
5,237,417 A	8/1993	Hayashi et al.	5,481,296 A	1/1996	Cragun et al.
			5,483,278 A	1/1996	Strubbe et al.
			5,485,197 A	1/1996	Hoarty
			5,485,219 A	1/1996	Woo
			5,485,221 A	1/1996	Banker et al.

(56)

## References Cited

## U.S. PATENT DOCUMENTS

5,487,616 A	1/1996	Ichbiah	5,654,886 A	8/1997	Zereski, Jr. et al.
5,488,409 A	1/1996	Yuen et al.	5,657,072 A	8/1997	Aristides et al.
5,495,295 A	2/1996	Long	5,657,091 A	8/1997	Bertram
5,502,504 A	3/1996	Marshall et al.	5,659,350 A	8/1997	Hendricks et al.
5,515,098 A	5/1996	Carles	5,659,366 A	8/1997	Kerman
5,523,794 A	6/1996	Mankovitz et al.	5,661,516 A	8/1997	Carles
5,523,796 A	6/1996	Marshall et al.	5,661,517 A	8/1997	Budow et al.
5,524,195 A	6/1996	Clanton, III et al.	5,663,757 A	9/1997	Morales
5,526,034 A	6/1996	Hoarty et al.	5,664,111 A	9/1997	Nahan et al.
5,528,304 A	6/1996	Cherrick et al.	5,666,293 A	9/1997	Metz et al.
5,532,735 A	7/1996	Blahut et al.	5,666,498 A	9/1997	Amro
5,532,754 A	7/1996	Young et al.	5,666,645 A	9/1997	Thomas et al.
5,534,911 A	7/1996	Levitan	5,671,276 A	9/1997	Eyer et al.
5,537,141 A	7/1996	Harper et al.	5,671,411 A	9/1997	Watts et al.
5,539,822 A	7/1996	Lett	5,675,390 A	10/1997	Schindler et al.
5,541,662 A	7/1996	Adams et al.	5,675,752 A	10/1997	Scott et al.
5,541,738 A	7/1996	Mankovitz	5,677,708 A	10/1997	Matthews, III et al.
5,550,576 A	8/1996	Klosterman	5,682,195 A	10/1997	Hendricks et al.
5,557,338 A	9/1996	Maze et al.	5,682,206 A	10/1997	Wehmeyer et al.
5,557,686 A	9/1996	Brown et al.	5,687,331 A	11/1997	Yolk et al.
5,557,721 A	9/1996	Fite et al.	5,689,648 A	11/1997	Diaz et al.
5,559,548 A	9/1996	Davis et al.	5,689,666 A	11/1997	Berquist et al.
5,559,549 A	9/1996	Hendricks et al.	5,692,214 A	11/1997	Levine
5,559,550 A	9/1996	Mankovitz	5,694,163 A	12/1997	Harrison
5,559,942 A	9/1996	Gough et al.	5,694,176 A	12/1997	Bruette et al.
5,561,471 A	10/1996	Kim et al.	5,694,381 A	12/1997	Sako
5,570,295 A	10/1996	Isenberg et al.	5,696,905 A	12/1997	Reimer et al.
5,572,442 A	11/1996	Schulhof et al.	5,699,107 A	12/1997	Lawler et al.
5,574,962 A	11/1996	Fardeau et al.	5,699,125 A	12/1997	Rzeszewski et al.
5,579,055 A	11/1996	Hamilton et al.	5,708,478 A	1/1998	Tognazzini
5,581,479 A	12/1996	McLaughlin et al.	5,710,601 A	1/1998	Marshall et al.
5,582,364 A	12/1996	Trulin et al.	5,710,815 A	1/1998	Ming et al.
5,583,560 A	12/1996	Florin et al.	5,715,314 A	2/1998	Payne et al.
5,583,563 A	12/1996	Wanderscheid et al.	5,715,399 A	2/1998	Bezos
5,585,838 A	12/1996	Lawler et al.	5,717,452 A	2/1998	Janin et al.
5,585,865 A	12/1996	Amano et al.	5,721,829 A	2/1998	Dunn et al.
5,585,866 A	12/1996	Miller et al.	5,724,521 A	3/1998	Dedrick
5,589,892 A	12/1996	Knee et al.	5,724,525 A	3/1998	Beyers, II et al.
5,592,551 A	1/1997	Lett et al.	5,727,060 A	3/1998	Young
5,594,509 A	1/1997	Florin et al.	5,727,163 A	3/1998	Bezos
5,596,373 A	1/1997	White et al.	5,731,844 A	3/1998	Rauch et al.
5,600,364 A	2/1997	Hendricks et al.	5,734,444 A	3/1998	Yoshinobu
5,600,366 A	2/1997	Schulman	5,734,853 A	3/1998	Hendricks et al.
5,600,573 A	2/1997	Hendricks et al.	5,734,893 A	3/1998	Li et al.
5,602,582 A	2/1997	Wanderscheid et al.	5,737,028 A	4/1998	Bertram et al.
5,602,596 A	2/1997	Claussen et al.	5,737,030 A	4/1998	Hong et al.
5,602,597 A	2/1997	Bertram	5,737,608 A	4/1998	Van De Vanter
5,606,374 A	2/1997	Bertram	5,740,549 A	4/1998	Reilly et al.
5,610,653 A	3/1997	Abecassis	5,745,889 A	4/1998	Burrows
5,617,565 A	4/1997	Augenbraun et al.	5,751,282 A	5/1998	Girard et al.
5,619,247 A	4/1997	Russo	5,752,159 A	5/1998	Faust et al.
5,619,249 A	4/1997	Billock et al.	5,752,160 A	5/1998	Dunn
5,619,274 A	4/1997	Roop et al.	5,754,258 A	5/1998	Hanaya et al.
5,621,456 A	4/1997	Florin et al.	5,754,771 A	5/1998	Epperson et al.
5,623,406 A	4/1997	Ichbiah	5,754,939 A	5/1998	Herz et al.
5,623,613 A	4/1997	Rowe et al.	5,757,417 A	5/1998	Aras et al.
5,627,940 A	5/1997	Rohra et al.	5,758,257 A	5/1998	Herz et al.
5,629,733 A	5/1997	Youman et al.	5,758,259 A	5/1998	Lawler
5,630,119 A	5/1997	Aristides et al.	5,760,821 A	6/1998	Ellis et al.
5,631,995 A	5/1997	Weissensteiner et al.	5,761,372 A	6/1998	Yoshinobu et al.
5,633,683 A	5/1997	Rosengren et al.	5,761,601 A	6/1998	Nemirofsky et al.
5,635,978 A	6/1997	Alten et al.	5,768,528 A	6/1998	Stumm
5,635,979 A	6/1997	Kostreski et al.	5,774,170 A	6/1998	Hite et al.
5,635,989 A	6/1997	Rothmuller	5,774,357 A	6/1998	Hoffberg et al.
5,636,346 A	6/1997	Saxe	5,774,534 A	6/1998	Mayer
5,640,501 A	6/1997	Turpin	5,774,588 A	6/1998	Li
5,640,577 A	6/1997	Scharmer	5,774,887 A	6/1998	Wolff et al.
5,642,153 A	6/1997	Chaney et al.	5,778,182 A	7/1998	Cathey et al.
5,648,813 A	7/1997	Tanigawa et al.	5,781,226 A	7/1998	Sheehan
5,648,824 A	7/1997	Dunn et al.	5,781,245 A	7/1998	Van Der Weij et al.
5,650,826 A	7/1997	Eitz	5,781,246 A	7/1998	Alten et al.
5,650,831 A	7/1997	Farwell	5,784,258 A	7/1998	Quinn
5,652,613 A	7/1997	Lazarus et al.	5,790,202 A	8/1998	Kummer et al.
5,652,615 A	7/1997	Bryant et al.	5,790,426 A	8/1998	Robinson
5,654,748 A	8/1997	Matthews, III	5,793,438 A	8/1998	Bedard
			5,793,964 A	8/1998	Rogers et al.
			5,798,785 A	8/1998	Hendricks et al.
			5,801,747 A	9/1998	Bedard
			5,801,785 A	9/1998	Crump et al.

(56)

## References Cited

## U.S. PATENT DOCUMENTS

5,801,787 A	9/1998	Schein et al.	5,940,572 A	8/1999	Balaban et al.
5,802,284 A	9/1998	Karlton et al.	5,945,928 A	8/1999	Kushler et al.
5,802,361 A	9/1998	Wang et al.	5,945,987 A	8/1999	Dunn
5,805,154 A	9/1998	Brown	5,945,988 A	8/1999	Williams et al.
5,805,155 A	9/1998	Allibhoy et al.	5,951,642 A	9/1999	Onoe et al.
5,805,167 A	9/1998	van Cruyningen	5,953,541 A	9/1999	King et al.
5,805,235 A	9/1998	Bedard	5,959,688 A	9/1999	Schein et al.
5,805,763 A	9/1998	Lawler et al.	5,960,411 A	9/1999	Hartman et al.
5,805,804 A	9/1998	Laursen et al.	5,973,683 A	10/1999	Cragun et al.
5,808,608 A	9/1998	Young et al.	5,974,222 A	10/1999	Yuen et al.
5,808,694 A	9/1998	Usui et al.	5,977,964 A	11/1999	Williams et al.
5,809,204 A	9/1998	Young et al.	5,986,650 A	11/1999	Ellis et al.
5,812,205 A	9/1998	Milnes et al.	5,988,078 A	11/1999	Levine
5,815,145 A	9/1998	Matthews, III	5,990,890 A	11/1999	Etheredge
5,815,671 A	9/1998	Morrison	5,990,927 A	11/1999	Hendricks et al.
5,818,437 A	10/1998	Grover et al.	5,999,912 A	12/1999	Wodarz et al.
5,818,438 A	10/1998	Howe et al.	6,002,393 A	12/1999	Hite et al.
5,818,439 A	10/1998	Nagasaka et al.	6,002,394 A	12/1999	Schein et al.
5,818,441 A	10/1998	Throckmorton et al.	6,005,562 A	12/1999	Shiga et al.
5,818,541 A	10/1998	Matsuura et al.	6,005,565 A	12/1999	Legall et al.
5,819,019 A	10/1998	Nelson	6,005,597 A	12/1999	Barrett et al.
5,819,156 A	10/1998	Belmont	6,006,225 A	12/1999	Bowman et al.
5,819,284 A	10/1998	Farber et al.	6,006,257 A	12/1999	Slezak
5,822,123 A	10/1998	Davis et al.	6,008,799 A	12/1999	Van Kleeck
5,828,402 A	10/1998	Codings	6,008,802 A	12/1999	Iki et al.
5,828,420 A	10/1998	Marshall et al.	6,009,459 A	12/1999	Belfiore et al.
5,828,839 A	10/1998	Moncreiff	6,011,546 A	1/2000	Bertram
5,828,945 A	10/1998	Klosterman	6,011,554 A	1/2000	King et al.
5,828,991 A	10/1998	Skiena et al.	6,012,053 A	1/2000	Pant et al.
5,830,068 A	11/1998	Brenner et al.	6,014,137 A	1/2000	Burns
5,835,087 A	11/1998	Herz et al.	6,014,502 A	1/2000	Moraes
5,838,314 A	11/1998	Neel et al.	6,016,141 A	1/2000	Knudson et al.
5,842,010 A	11/1998	Jain et al.	6,018,372 A	1/2000	Etheredge
5,842,199 A	11/1998	Miller et al.	6,018,768 A	1/2000	Ullman et al.
5,844,620 A	12/1998	Coleman et al.	6,020,883 A	2/2000	Herz et al.
5,848,352 A	12/1998	Dougherty et al.	6,020,929 A	2/2000	Marshall et al.
5,848,396 A	12/1998	Gerace	6,025,837 A	2/2000	Matthews, III et al.
5,848,397 A	12/1998	Marsh et al.	6,025,886 A	2/2000	Koda
5,850,218 A	12/1998	LaJoie et al.	6,028,599 A	2/2000	Yuen et al.
5,857,212 A	1/1999	Van De Vanter	6,029,045 A	2/2000	Picco et al.
5,859,662 A	1/1999	Cragun et al.	6,029,195 A	2/2000	Herz
5,862,292 A	1/1999	Kubota et al.	6,035,304 A	3/2000	Machida et al.
5,867,226 A	2/1999	Wehmeyer	6,041,311 A	3/2000	Chislenko et al.
5,867,227 A	2/1999	Yamaguchi	6,047,300 A	4/2000	Walfish et al.
5,872,588 A	2/1999	Aras et al.	6,047,317 A	4/2000	Bisdikian et al.
5,872,834 A	2/1999	Teitelbaum	6,049,333 A	4/2000	LaJoie et al.
5,874,985 A	2/1999	Matthews, III	6,049,824 A	4/2000	Simonin
5,875,108 A	2/1999	Hoffberg et al.	6,052,145 A	4/2000	Macrae et al.
5,880,768 A	3/1999	Lemmons et al.	6,061,060 A	5/2000	Berry et al.
5,883,677 A	3/1999	Hofmann	6,061,097 A	5/2000	Satterfield
5,886,691 A	3/1999	Furuya et al.	6,064,376 A	5/2000	Berezowski et al.
5,886,731 A	3/1999	Ebisawa	6,064,980 A	5/2000	Jacobi et al.
5,892,498 A	4/1999	Marshall et al.	6,067,303 A	5/2000	Aaker et al.
5,892,535 A	4/1999	Allen et al.	6,072,460 A	6/2000	Marshall et al.
5,896,321 A	4/1999	Miller	6,075,526 A	6/2000	Rothmuller
5,896,444 A	4/1999	Perlman et al.	6,075,551 A	6/2000	Berezowski et al.
5,900,905 A	5/1999	Shoff et al.	6,075,575 A	6/2000	Schein et al.
5,903,314 A	5/1999	Nijima et al.	6,078,348 A	6/2000	Klosterman et al.
5,903,545 A	5/1999	Sabourin et al.	6,081,750 A	6/2000	Hoffberg et al.
5,903,816 A	5/1999	Broadwin et al.	6,088,722 A	7/2000	Herz et al.
5,905,497 A	5/1999	Vaughan et al.	6,091,883 A	7/2000	Artigal et al.
5,907,323 A	5/1999	Lawler et al.	6,098,065 A	8/2000	Skillen et al.
5,907,366 A	5/1999	Farmer et al.	6,108,042 A	8/2000	Adams et al.
5,912,664 A	6/1999	Eick et al.	6,111,614 A	8/2000	Mugura et al.
5,914,746 A	6/1999	Matthews, III et al.	6,112,186 A	8/2000	Bergh et al.
5,917,481 A	6/1999	Rzeszewski et al.	6,115,057 A	9/2000	Kwoh et al.
5,917,830 A	6/1999	Chen et al.	6,118,492 A	9/2000	Milnes et al.
5,918,014 A	6/1999	Robinson	6,119,098 A	9/2000	Guyot et al.
5,920,700 A	7/1999	Gordon et al.	6,119,101 A	9/2000	Peckover
5,929,849 A	7/1999	Kikinis	6,122,011 A	9/2000	Dias et al.
5,929,850 A	7/1999	Broadwin et al.	6,125,230 A	9/2000	Yaginuma
5,930,788 A	7/1999	Wical	6,133,909 A	10/2000	Schein et al.
5,936,679 A	8/1999	Kasahara et al.	6,141,003 A	10/2000	Chor et al.
5,937,422 A	8/1999	Nelson et al.	6,144,401 A	11/2000	Casement et al.
5,940,073 A	8/1999	Klosterman et al.	6,147,714 A	11/2000	Terasawa et al.
			6,151,059 A	11/2000	Schein et al.
			6,154,203 A	11/2000	Yuen et al.
			6,157,413 A	12/2000	Hanafee et al.
			6,160,545 A	12/2000	Eyer et al.

(56)

## References Cited

## U.S. PATENT DOCUMENTS

6,160,546	A	12/2000	Thompson et al.	6,446,261	B1	9/2002	Rosser
6,160,570	A	12/2000	Sitnik	6,453,471	B1	9/2002	Klosterman
6,163,316	A	12/2000	Killian	6,456,331	B2	9/2002	Kwoh
6,169,542	B1	1/2001	Hooks et al.	6,463,585	B1	10/2002	Hendricks et al.
6,169,984	B1	1/2001	Bogdan	6,463,586	B1	10/2002	Jerding
6,172,674	B1	1/2001	Etheredge	6,466,933	B1	10/2002	Huang et al.
6,172,677	B1	1/2001	Stautner et al.	6,469,753	B1	10/2002	Klosterman et al.
6,173,271	B1	1/2001	Goodman et al.	6,470,497	B1	10/2002	Ellis et al.
6,177,931	B1	1/2001	Alexander et al.	6,477,579	B1	11/2002	Kunkel et al.
6,178,446	B1	1/2001	Gerszberg et al.	6,477,705	B1	11/2002	Yuen et al.
6,181,335	B1	1/2001	Hendricks et al.	6,486,920	B2	11/2002	Arai et al.
6,184,877	B1	2/2001	Dodson et al.	6,498,895	B2	12/2002	Young et al.
6,186,443	B1	2/2001	Shaffer	6,501,956	B1	12/2002	Weeren et al.
6,189,002	B1	2/2001	Roitblat	6,505,348	B1	1/2003	Knowles et al.
6,191,780	B1	2/2001	Martin et al.	6,515,680	B1	2/2003	Hendricks et al.
6,202,212	B1	3/2001	Sturgeon et al.	6,516,329	B1	2/2003	Smith
6,204,848	B1	3/2001	Nowlan et al.	6,527,903	B1	3/2003	Kataoka et al.
6,209,129	B1	3/2001	Carr et al.	6,529,903	B2	3/2003	Smith
6,209,130	B1	3/2001	Rector, Jr. et al.	6,539,548	B1	3/2003	Hendricks et al.
6,216,264	B1	4/2001	Maze et al.	6,542,169	B1	4/2003	Marshall et al.
6,223,059	B1	4/2001	Haestrup et al.	6,543,052	B1	4/2003	Ogasawara
6,239,794	B1	5/2001	Yuen et al.	6,546,556	B1	4/2003	Kataoka et al.
6,240,555	B1	5/2001	Shoff et al.	6,564,213	B1	5/2003	Ortega et al.
6,253,203	B1	6/2001	O'Flaherty et al.	6,564,313	B1	5/2003	Kashyap
6,256,071	B1	7/2001	Hiroi	6,564,378	B1	5/2003	Satterfield et al.
6,256,785	B1	7/2001	Klappert et al.	6,564,379	B1	5/2003	Knudson et al.
6,257,268	B1	7/2001	Hope et al.	6,574,424	B1	6/2003	Dimitri et al.
6,260,050	B1	7/2001	Yost et al.	6,588,013	B1	7/2003	Lumley et al.
6,262,721	B1	7/2001	Tsukidate et al.	6,594,657	B1	7/2003	Livowsky et al.
6,263,501	B1	7/2001	Schein et al.	6,600,364	B1	7/2003	Liang et al.
6,263,507	B1	7/2001	Ahmad et al.	6,600,496	B1	7/2003	Wagner et al.
6,266,048	B1	7/2001	Carau, Sr.	6,600,503	B2	7/2003	Stautner et al.
6,266,814	B1	7/2001	Lemmons et al.	6,604,138	B1	8/2003	Virine et al.
6,268,849	B1	7/2001	Boyer et al.	6,606,128	B2	8/2003	Hanafee et al.
6,269,361	B1	7/2001	Davis et al.	6,614,422	B1	9/2003	Raffi et al.
6,275,268	B1	8/2001	Ellis et al.	6,614,455	B1	9/2003	Cuijpers et al.
6,279,157	B1	8/2001	Takasu	6,615,248	B1	9/2003	Smith
6,285,713	B1	9/2001	Nakaya et al.	6,622,148	B1	9/2003	Noble et al.
6,286,064	B1	9/2001	King et al.	6,622,306	B1	9/2003	Kamada
6,286,140	B1	9/2001	Ivanyi	6,631,496	B1	10/2003	Li et al.
6,289,346	B1	9/2001	Milewski et al.	6,631,523	B1	10/2003	Matthews, III et al.
6,292,804	B1	9/2001	Ardoin et al.	6,651,251	B1	11/2003	Shoff et al.
6,298,482	B1	10/2001	Seidman et al.	6,660,503	B2	12/2003	Kierulff
6,307,548	B1	10/2001	Flinchem et al.	6,662,177	B1	12/2003	Martino et al.
6,307,549	B1	10/2001	King et al.	6,664,980	B2	12/2003	Bryan et al.
6,311,877	B1	11/2001	Yang et al.	6,665,869	B1	12/2003	Ellis et al.
6,312,336	B1	11/2001	Handelman et al.	6,687,906	B1	2/2004	Yuen et al.
6,320,588	B1	11/2001	Palmer et al.	6,698,020	B1	2/2004	Zigmond et al.
6,323,911	B1	11/2001	Schein et al.	6,708,336	B1	3/2004	Bruette
6,331,877	B1	12/2001	Bennington et al.	6,721,731	B2	4/2004	Cornwell et al.
6,341,195	B1	1/2002	Mankovitz et al.	6,721,954	B1	4/2004	Nickum
6,342,926	B1	1/2002	Hanafee et al.	6,732,369	B1	5/2004	Schein et al.
6,357,042	B2	3/2002	Srinivasan et al.	6,734,881	B1	5/2004	Will
6,360,215	B1	3/2002	Judd et al.	6,735,695	B1	5/2004	Gopalakrishnan et al.
6,363,525	B1	3/2002	Dougherty et al.	6,738,978	B1	5/2004	Hendricks et al.
6,370,518	B1	4/2002	Payne et al.	6,742,183	B1	5/2004	Reynolds et al.
6,377,945	B1	4/2002	Risvik et al.	6,751,800	B1	6/2004	Fukuda et al.
6,381,582	B1	4/2002	Walker et al.	6,756,997	B1	6/2004	Ward, III et al.
6,383,080	B1	5/2002	Link et al.	6,757,906	B1	6/2004	Look et al.
6,385,602	B1	5/2002	Tso et al.	6,760,537	B2	7/2004	Mankovitz
6,388,714	B1	5/2002	Schein et al.	6,760,918	B2	7/2004	Rodriguez et al.
6,389,593	B1	5/2002	Yamagishi	6,766,526	B1	7/2004	Ellis
6,392,640	B1	5/2002	Will	6,772,147	B2	8/2004	Wang
6,392,710	B1	5/2002	Gonsalves et al.	6,785,671	B1	8/2004	Bailey et al.
6,396,546	B1	5/2002	Alten et al.	6,799,326	B2	9/2004	Boylan, III et al.
6,400,407	B1	6/2002	Zigmond et al.	6,799,327	B1	9/2004	Reynolds et al.
6,405,371	B1	6/2002	Oosterhout et al.	6,801,909	B2	10/2004	Delgado et al.
6,408,437	B1	6/2002	Hendricks et al.	6,828,993	B1	12/2004	Hendricks et al.
6,411,308	B1	6/2002	Blonstein et al.	6,835,602	B2	12/2004	Norskov et al.
6,412,110	B1	6/2002	Schein et al.	6,839,702	B1	1/2005	Patel et al.
6,418,556	B1	7/2002	Bennington et al.	6,839,705	B1	1/2005	Grooters
6,421,067	B1	7/2002	Kamen et al.	6,850,693	B2	2/2005	Young et al.
6,437,836	B1	8/2002	Huang et al.	6,865,575	B1	3/2005	Smith et al.
6,438,579	B1	8/2002	Hosken et al.	6,865,746	B1	3/2005	Herrington et al.
6,438,751	B1	8/2002	Voyticky et al.	6,868,551	B1	3/2005	Lawler et al.
				6,907,273	B1	6/2005	Smethers
				6,938,208	B2	8/2005	Reichardt
				6,965,374	B2	11/2005	Villet et al.
				6,973,669	B2	12/2005	Daniels

(56)

References Cited

U.S. PATENT DOCUMENTS

6,981,273 B1	12/2005	Domegan et al.	8,046,801 B2	10/2011	Ellis et al.
6,983,478 B1	1/2006	Grauch et al.	8,051,450 B2	11/2011	Robarts et al.
6,999,959 B1	2/2006	Lawrence et al.	8,073,860 B2	12/2011	Venkataraman et al.
7,003,792 B1	2/2006	Yuen	8,078,884 B2	12/2011	Ramakrishnan et al.
7,007,008 B2	2/2006	Goel et al.	8,107,397 B1	1/2012	Bagchi et al.
7,013,304 B1	3/2006	Schuetze et al.	8,433,696 B2	4/2013	Venkataraman et al.
7,028,323 B2	4/2006	Franken et al.	8,527,510 B2	9/2013	Chen
7,028,326 B1	4/2006	Westlake et al.	8,732,152 B2	5/2014	Krakirian et al.
7,069,576 B1	6/2006	Knudson et al.	9,332,244 B2	5/2016	Tsuyuki
7,089,236 B1	8/2006	Stibel	9,684,796 B2	6/2017	Wakita
7,110,714 B1	9/2006	Kay et al.	2001/0029610 A1	10/2001	Corvin et al.
7,117,207 B1	10/2006	Kerschberg et al.	2001/0042246 A1	11/2001	Yuen et al.
7,130,866 B2	10/2006	Schaffer	2001/0044759 A1	11/2001	Kutsumi et al.
7,136,845 B2	11/2006	Chandrasekar et al.	2001/0047298 A1	11/2001	Moore et al.
7,136,854 B2	11/2006	Smith	2001/0049820 A1	12/2001	Barton
7,146,627 B1	12/2006	Ismail et al.	2001/0054181 A1	12/2001	Corvin
7,149,983 B1	12/2006	Robertson et al.	2002/0002550 A1	1/2002	Berman
7,165,098 B1	1/2007	Boyer et al.	2002/0023262 A1	2/2002	Porter
7,174,512 B2	2/2007	Martin et al.	2002/0023263 A1	2/2002	Ahn et al.
7,185,335 B2	2/2007	Hind et al.	2002/0042791 A1	4/2002	Smith et al.
7,185,355 B1	2/2007	Ellis et al.	2002/0042913 A1	4/2002	Ellis et al.
7,191,238 B2	3/2007	Uchida	2002/0042914 A1	4/2002	Walker et al.
7,213,256 B1	5/2007	Kikinis	2002/0042918 A1	4/2002	Townsend et al.
7,225,180 B2	5/2007	Donaldson et al.	2002/0049752 A1	4/2002	Bowman et al.
7,225,184 B2	5/2007	Carrasco et al.	2002/0052873 A1	5/2002	Delgado et al.
7,225,455 B2	5/2007	Bennington et al.	2002/0059066 A1	5/2002	O'Hagan
7,228,556 B2	6/2007	Beach et al.	2002/0059602 A1	5/2002	Macrae et al.
7,228,856 B2	6/2007	Aoyagi	2002/0059621 A1	5/2002	Thomas et al.
7,266,833 B2	9/2007	Ward, III et al.	2002/0065802 A1	5/2002	Uchiyama
7,269,548 B2	9/2007	Fux et al.	2002/0073424 A1	6/2002	Ward, III et al.
7,293,231 B1	11/2007	Gunn et al.	2002/0077143 A1	6/2002	Sharif et al.
7,293,276 B2	11/2007	Phillips et al.	2002/0078045 A1	6/2002	Dutta
7,328,450 B2	2/2008	Macrae et al.	2002/0083439 A1	6/2002	Eldering
7,392,532 B2	6/2008	White et al.	2002/0083448 A1	6/2002	Johnson
7,451,470 B2	11/2008	Zimmerman	2002/0092017 A1	7/2002	Klosterman et al.
7,461,061 B2	12/2008	Aravamudan et al.	2002/0103798 A1	8/2002	Abrol et al.
7,480,929 B2	1/2009	Klosterman et al.	2002/0116291 A1	8/2002	Grasso et al.
7,487,151 B2	2/2009	Yamamoto et al.	2002/0120925 A1	8/2002	Logan
7,502,774 B2	3/2009	Beavers et al.	2002/0120933 A1	8/2002	Knudson et al.
7,509,313 B2	3/2009	Colledge et al.	2002/0124249 A1	9/2002	Shintani et al.
7,529,741 B2	5/2009	Aravamudan et al.	2002/0129366 A1	9/2002	Schein et al.
7,529,744 B1	5/2009	Srivastava et al.	2002/0133481 A1	9/2002	Smith et al.
7,536,384 B2	5/2009	Venkataraman et al.	2002/0140728 A1	10/2002	Zimmerman
7,536,854 B2	5/2009	Da-Silva et al.	2002/0144267 A1	10/2002	Gutta et al.
7,539,676 B2	5/2009	Aravamudan et al.	2002/0152190 A1	10/2002	Biebesheimer et al.
7,548,915 B2	6/2009	Ramer et al.	2002/0173986 A1	11/2002	Lehew et al.
7,562,069 B1	7/2009	Chowdhury et al.	2002/0174430 A1	11/2002	Ellis et al.
7,594,244 B2	9/2009	Scholl et al.	2002/0184373 A1	12/2002	Maes
7,644,054 B2	1/2010	Garg et al.	2002/0188488 A1	12/2002	Hinkle
7,650,348 B2	1/2010	Lowles et al.	2002/0196163 A1	12/2002	Bradford
7,657,526 B2	2/2010	Aravamudan et al.	2002/0196268 A1	12/2002	Wolff et al.
7,668,832 B2	2/2010	Yeh et al.	2002/0199192 A1	12/2002	Donnelly
7,673,319 B1	3/2010	Hendricks et al.	2002/0199194 A1	12/2002	Ali
7,679,534 B2	3/2010	Kay et al.	2003/0005432 A1	1/2003	Ellis et al.
7,680,882 B2	3/2010	Tiu, Jr. et al.	2003/0005445 A1	1/2003	Schein et al.
7,683,886 B2	3/2010	Willey	2003/0005452 A1	1/2003	Rodriguez
7,685,197 B2	3/2010	Fain et al.	2003/0005462 A1	1/2003	Broadus et al.
7,712,053 B2	5/2010	Bradford et al.	2003/0011573 A1	1/2003	Villet et al.
7,725,485 B1	5/2010	Sahami et al.	2003/0014399 A1	1/2003	Hansen et al.
7,725,486 B2	5/2010	Tsuzuki et al.	2003/0014753 A1	1/2003	Beach et al.
7,739,280 B2	6/2010	Aravamudan et al.	2003/0023976 A1	1/2003	Kamen et al.
7,756,895 B1	7/2010	Emigh	2003/0028884 A1	2/2003	Swart et al.
7,757,250 B1	7/2010	Horvitz et al.	2003/0028889 A1	2/2003	Mccoskey et al.
7,774,294 B2	8/2010	Aravamudan et al.	2003/0033292 A1	2/2003	Meisel et al.
7,774,341 B2	8/2010	Aravamudan et al.	2003/0037043 A1	2/2003	Chang et al.
7,779,011 B2	8/2010	Venkataraman et al.	2003/0037333 A1	2/2003	Ghashghai et al.
7,788,266 B2	8/2010	Venkataraman et al.	2003/0046698 A1	3/2003	Kamen et al.
7,792,815 B2	9/2010	Aravamudan et al.	2003/0051240 A1	3/2003	Schaffer et al.
7,835,998 B2	11/2010	Aravamudan et al.	2003/0055894 A1	3/2003	Yeager et al.
7,885,963 B2	2/2011	Sanders	2003/0066068 A1	4/2003	Gutta et al.
7,890,526 B1	2/2011	Brewer et al.	2003/0066079 A1	4/2003	Suga
7,904,924 B1	3/2011	de Heer et al.	2003/0067495 A1	4/2003	Pu et al.
7,925,986 B2	4/2011	Aravamudan	2003/0079227 A1	4/2003	Knowles et al.
7,974,962 B2	7/2011	Krakirian et al.	2003/0084270 A1	5/2003	Coon et al.
8,005,813 B2	8/2011	Chowdhury et al.	2003/0084450 A1*	5/2003	Thurston ..... H04N 21/4826 348/E7.071
			2003/0097661 A1	5/2003	Li et al.
			2003/0103088 A1	6/2003	Dresti et al.
			2003/0105637 A1	6/2003	Rodriguez et al.

(56)

## References Cited

## U.S. PATENT DOCUMENTS

2003/0110499	A1	6/2003	Knudson et al.	2005/0002781	A1	1/2005	Verdier
2003/0110507	A1	6/2003	Dimitrova et al.	2005/0010949	A1	1/2005	Ward et al.
2003/0117434	A1	6/2003	Hugh	2005/0015366	A1	1/2005	Carrasco et al.
2003/0135464	A1	7/2003	Mourad et al.	2005/0015804	A1	1/2005	LaJoie et al.
2003/0144862	A1	7/2003	Smith et al.	2005/0028218	A1	2/2005	Blake
2003/0154138	A1	8/2003	Phillips et al.	2005/0033967	A1	2/2005	Morino et al.
2003/0163813	A1	8/2003	Klosterman et al.	2005/0038702	A1	2/2005	Merriman et al.
2003/0164858	A1	9/2003	Klosterman et al.	2005/0060743	A1	3/2005	Ohnuma et al.
2003/0188310	A1	10/2003	Klosterman et al.	2005/0071874	A1	3/2005	Elcock et al.
2003/0188311	A1	10/2003	Yuen et al.	2005/0079895	A1	4/2005	Kalenius et al.
2003/0196201	A1	10/2003	Schein et al.	2005/0084235	A1	4/2005	Nakajima et al.
2003/0196203	A1	10/2003	Ellis et al.	2005/0086234	A1	4/2005	Tosey
2003/0204847	A1	10/2003	Ellis et al.	2005/0086691	A1	4/2005	Dudkiewicz et al.
2003/0208756	A1	11/2003	Macrae et al.	2005/0086692	A1	4/2005	Dudkiewicz et al.
2003/0208758	A1	11/2003	Schein et al.	2005/0097170	A1	5/2005	Zhu et al.
2003/0217121	A1	11/2003	Willis	2005/0097622	A1	5/2005	Zigmond et al.
2003/0226146	A1	12/2003	Thurston et al.	2005/0105881	A1	5/2005	Mankovitz
2003/0229900	A1	12/2003	Reisman	2005/0125307	A1	6/2005	Hunt et al.
2003/0233656	A1	12/2003	Sie et al.	2005/0129199	A1	6/2005	Abe
2003/0237096	A1	12/2003	Barrett et al.	2005/0155056	A1	7/2005	Knee et al.
2004/0003407	A1	1/2004	Hanafee et al.	2005/0157217	A1	7/2005	Hendricks
2004/0008319	A1	1/2004	Lai et al.	2005/0160458	A1	7/2005	Baumgartner
2004/0010326	A1	1/2004	Schuster	2005/0174333	A1	8/2005	Robinson et al.
2004/0013909	A1	1/2004	Shimizu et al.	2005/0187945	A1	8/2005	Ehrich et al.
2004/0021691	A1	2/2004	Dostie et al.	2005/0192944	A1	9/2005	Flinchem
2004/0024777	A1	2/2004	Schaffer	2005/0198668	A1	9/2005	Yuen et al.
2004/0031931	A1	2/2004	Miller et al.	2005/0204382	A1	9/2005	Ellis
2004/0034652	A1	2/2004	Hofmann et al.	2005/0204388	A1	9/2005	Knudson et al.
2004/0044677	A1	3/2004	Huper-Graff et al.	2005/0210020	A1	9/2005	Gunn et al.
2004/0046744	A1	3/2004	Rafii et al.	2005/0210383	A1	9/2005	Cucerzan et al.
2004/0049783	A1	3/2004	Lemmons et al.	2005/0210402	A1	9/2005	Gunn et al.
2004/0049787	A1	3/2004	Malsel et al.	2005/0216936	A1	9/2005	Knudson et al.
2004/0054520	A1	3/2004	Dehlinger et al.	2005/0223308	A1	10/2005	Gunn et al.
2004/0073432	A1	4/2004	Stone	2005/0229214	A1	10/2005	Young et al.
2004/0073926	A1	4/2004	Nakamura et al.	2005/0235319	A1	10/2005	Carpenter et al.
2004/0078809	A1	4/2004	Drazin	2005/0240580	A1	10/2005	Zamir et al.
2004/0078815	A1	4/2004	Lemmons et al.	2005/0244138	A1	11/2005	O'Connor et al.
2004/0078816	A1	4/2004	Johnson	2005/0246311	A1	11/2005	Whelan et al.
2004/0078820	A1	4/2004	Nickum	2005/0246324	A1	11/2005	Paalasmaa et al.
2004/0083198	A1	4/2004	Bradford et al.	2005/0246365	A1	11/2005	Lowles
2004/0091236	A1	5/2004	Boston	2005/0251827	A1	11/2005	Ellis et al.
2004/0093616	A1	5/2004	Johnson	2005/0256756	A1	11/2005	Lam
2004/0103024	A1	5/2004	Patel et al.	2005/0256846	A1	11/2005	Zigmond et al.
2004/0103434	A1	5/2004	Ellis	2005/0262542	A1	11/2005	DeWeese et al.
2004/0103439	A1	5/2004	Macrae et al.	2005/0267994	A1	12/2005	Wong et al.
2004/0111742	A1	6/2004	Hendricks et al.	2005/0273812	A1	12/2005	Sakai
2004/0111745	A1	6/2004	Schein et al.	2005/0278175	A1	12/2005	Hyvonen
2004/0117831	A1	6/2004	Ellis et al.	2005/0278741	A1	12/2005	Robarts et al.
2004/0123319	A1	6/2004	Kim	2005/0283468	A1	12/2005	Kamvar et al.
2004/0128282	A1	7/2004	Kleinberger et al.	2005/0283540	A1	12/2005	Fux
2004/0128686	A1	7/2004	Boyer et al.	2005/0283796	A1	12/2005	Flickinger
2004/0133564	A1	7/2004	Gross et al.	2006/0004892	A1	1/2006	Lunt
2004/0139091	A1	7/2004	Shin	2006/0010477	A1	1/2006	Yu
2004/0139465	A1	7/2004	Matthews, III et al.	2006/0010478	A1	1/2006	White et al.
2004/0143569	A1	7/2004	Gross et al.	2006/0010503	A1	1/2006	Inoue et al.
2004/0155908	A1	8/2004	Wagner	2006/0013487	A1	1/2006	Longe et al.
2004/0163032	A1	8/2004	Guo et al.	2006/0015588	A1	1/2006	Achlioptas et al.
2004/0168131	A1	8/2004	Blumberg	2006/0015906	A1	1/2006	Boyer et al.
2004/0168189	A1	8/2004	Reynolds et al.	2006/0020662	A1	1/2006	Robinson
2004/0175121	A1	9/2004	Ellis et al.	2006/0026641	A1	2/2006	Jule et al.
2004/0192270	A1	9/2004	Kreitzer	2006/0036640	A1	2/2006	Tateno et al.
2004/0194131	A1	9/2004	Ellis et al.	2006/0041843	A1	2/2006	Billsus et al.
2004/0194138	A1	9/2004	Boylan, III et al.	2006/0044277	A1	3/2006	Fux et al.
2004/0194141	A1	9/2004	Sanders	2006/0053449	A1	3/2006	Gutta
2004/0205065	A1	10/2004	Petras et al.	2006/0053470	A1	3/2006	Colter et al.
2004/0216156	A1	10/2004	Wagner	2006/0059044	A1	3/2006	Chan et al.
2004/0216160	A1	10/2004	Lemmons et al.	2006/0069616	A1	3/2006	Bau
2004/0220926	A1	11/2004	Lamkin et al.	2006/0075429	A1	4/2006	Istvan et al.
2004/0221308	A1	11/2004	Cuttner et al.	2006/0090182	A1	4/2006	Horowitz et al.
2004/0231003	A1	11/2004	Cooper	2006/0090185	A1	4/2006	Zito et al.
2004/0254911	A1	12/2004	Grasso et al.	2006/0090812	A1	5/2006	Summerville
2004/0260574	A1	12/2004	Gross	2006/0095937	A1	5/2006	Knudson et al.
2004/0261021	A1	12/2004	Mittal et al.	2006/0098899	A1	5/2006	King et al.
2004/0261098	A1	12/2004	Macrae et al.	2006/0101499	A1	5/2006	Aravamudan et al.
2004/0268250	A1	12/2004	Danker et al.	2006/0101503	A1	5/2006	Venkataraman et al.
				2006/0101504	A1	5/2006	Aravamudan et al.
				2006/0106782	A1	5/2006	Blumenau et al.
				2006/0112162	A1	5/2006	Marot et al.
				2006/0117019	A1	6/2006	Sylthe et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2006/0129530	A1	6/2006	Beavers et al.	2007/0168544	A1	7/2007	Sciammarella
2006/0136379	A1	6/2006	Marino et al.	2007/0174249	A1	7/2007	James
2006/0150216	A1	7/2006	Herz et al.	2007/0182595	A1	8/2007	Ghasablan
2006/0155694	A1	7/2006	Chowdhury et al.	2007/0186240	A1	8/2007	Ward et al.
2006/0156233	A1	7/2006	Nurmi	2007/0186242	A1	8/2007	Price
2006/0161520	A1	7/2006	Brewer et al.	2007/0199025	A1	8/2007	Angiolillo
2006/0163337	A1	7/2006	Unruh	2007/0208613	A1	9/2007	Backer
2006/0167676	A1	7/2006	Plumb	2007/0208718	A1	9/2007	Javid et al.
2006/0167859	A1	7/2006	Verbeck Sibley et al.	2007/0214126	A1	9/2007	Kikinis
2006/0173818	A1	8/2006	Berstis et al.	2007/0214162	A1	9/2007	Rice
2006/0176283	A1	8/2006	Suraqui	2007/0219984	A1	9/2007	Aravamudan et al.
2006/0184960	A1	8/2006	Horton et al.	2007/0219985	A1	9/2007	Aravamudan et al.
2006/0184989	A1	8/2006	Slothouber	2007/0226649	A1	9/2007	Agmon
2006/0190308	A1	8/2006	Janssens et al.	2007/0239682	A1	10/2007	Arellanes et al.
2006/0190436	A1	8/2006	Richardson et al.	2007/0240045	A1	10/2007	Fux et al.
2006/0190966	A1	8/2006	Mckissick et al.	2007/0242178	A1	10/2007	Kawasaki et al.
2006/0195435	A1	8/2006	Laird-McConnell et al.	2007/0250866	A1	10/2007	Yamada
2006/0206454	A1	9/2006	Forstall et al.	2007/0255693	A1	11/2007	Ramaswamy et al.
2006/0206815	A1	9/2006	Pathiyal et al.	2007/0256070	A1	11/2007	Bykov et al.
2006/0212906	A1	9/2006	Cantalini	2007/0260703	A1	11/2007	Ardhanari et al.
2006/0230350	A1	10/2006	Baluja	2007/0266021	A1	11/2007	Aravamudan et al.
2006/0242178	A1	10/2006	Butterfield et al.	2007/0266026	A1	11/2007	Aravamudan et al.
2006/0242607	A1	10/2006	Hudson	2007/0266406	A1	11/2007	Aravamudan et al.
2006/0248078	A1	11/2006	Gross et al.	2007/0271205	A1	11/2007	Aravamudan et al.
2006/0248555	A1	11/2006	Eldering	2007/0276773	A1	11/2007	Aravamudan et al.
2006/0248573	A1	11/2006	Pannu	2007/0276821	A1	11/2007	Aravamudan et al.
2006/0256070	A1	11/2006	Moosavi et al.	2007/0276859	A1	11/2007	Aravamudan et al.
2006/0256078	A1	11/2006	Flinchem et al.	2007/0288456	A1	12/2007	Aravamudan et al.
2006/0256135	A1*	11/2006	Aoyama ..... A63F 13/53 345/629	2007/0288457	A1	12/2007	Aravamudan et al.
2006/0259344	A1	11/2006	Patel et al.	2008/0016240	A1	1/2008	Balandin
2006/0259479	A1	11/2006	Dai	2008/0021884	A1	1/2008	Jones et al.
2006/0261021	A1	11/2006	Stagnaro	2008/0065617	A1	3/2008	Burke et al.
2006/0271552	A1	11/2006	Mcchesney et al.	2008/0071771	A1	3/2008	Venkataraman et al.
2006/0271953	A1	11/2006	Jacoby	2008/0077577	A1	3/2008	Byrne
2006/0271959	A1	11/2006	Jacoby et al.	2008/0086704	A1	4/2008	Aravamudan
2006/0274051	A1	12/2006	Longe et al.	2008/0109401	A1	5/2008	Sareen et al.
2006/0282856	A1	12/2006	Errico et al.	2008/0114743	A1	5/2008	Venkataraman et al.
2006/0285665	A1	12/2006	Wasserblat	2008/0127265	A1	5/2008	Ward et al.
2007/0005526	A1	1/2007	Whitney et al.	2008/0127266	A1	5/2008	Ward et al.
2007/0005563	A1	1/2007	Aravamudan et al.	2008/0132259	A1	6/2008	Vin
2007/0005576	A1	1/2007	Cutrell et al.	2008/0134043	A1	6/2008	Georgis
2007/0016476	A1	1/2007	Hoffberg et al.	2008/0147711	A1	6/2008	Spiegelman
2007/0016862	A1	1/2007	Kuzmin	2008/0172368	A1	7/2008	Chowdhury et al.
2007/0016926	A1	1/2007	Ward et al.	2008/0177717	A1	7/2008	Kumar et al.
2007/0027848	A1	2/2007	Howard et al.	2008/0178221	A1	7/2008	Schein et al.
2007/0027852	A1	2/2007	Howard et al.	2008/0184315	A1	7/2008	Ellis et al.
2007/0027861	A1	2/2007	Huentelman et al.	2008/0188213	A1	8/2008	Mankovitz
2007/0027871	A1	2/2007	Arbajian	2008/0189744	A1	8/2008	Schein et al.
2007/0033613	A1	2/2007	Ward et al.	2008/0195601	A1	8/2008	Ntoulas et al.
2007/0043750	A1	2/2007	Dingle	2008/0209229	A1	8/2008	Ramakrishnan et al.
2007/0044122	A1	2/2007	Scholl et al.	2008/0209343	A1*	8/2008	Macadaan ..... G06F 16/54 715/747
2007/0050337	A1	3/2007	Venkataraman et al.	2008/0235725	A1	9/2008	Hendricks
2007/0050348	A1	3/2007	Aharoni et al.	2008/0255977	A1	10/2008	Altberg et al.
2007/0061244	A1	3/2007	Ramer et al.	2008/0275719	A1	11/2008	Davis et al.
2007/0061317	A1	3/2007	Ramer et al.	2008/0276279	A1*	11/2008	Gossweiler ..... H04N 21/44226 725/46
2007/0061321	A1	3/2007	Venkataraman et al.	2008/0295132	A1	11/2008	Icho
2007/0061753	A1	3/2007	Ng et al.	2008/0301732	A1	12/2008	Archer et al.
2007/0061754	A1	3/2007	Ardhanari et al.	2008/0313564	A1	12/2008	Barve et al.
2007/0064626	A1	3/2007	Evans	2009/0007184	A1	1/2009	Nakamarua
2007/0067272	A1	3/2007	Flynt et al.	2009/0077496	A1	3/2009	Aravamudan et al.
2007/0074131	A1	3/2007	Assadollahi	2009/0112989	A1	4/2009	Anderson et al.
2007/0076862	A1	4/2007	Chatterjee et al.	2009/0125602	A1	5/2009	Bhatia
2007/0079239	A1	4/2007	Ghassabian	2009/0133070	A1	5/2009	Hamano et al.
2007/0088681	A1	4/2007	Aravamudan et al.	2009/0151002	A1	6/2009	Zuniga et al.
2007/0094024	A1	4/2007	Kristensson et al.	2009/0164263	A1	6/2009	Marlow
2007/0100650	A1	5/2007	Ramer et al.	2009/0198688	A1	8/2009	Venkataraman et al.
2007/0121843	A1	5/2007	Atazky	2009/0217203	A1	8/2009	Aravamudan et al.
2007/0130128	A1	6/2007	Garg et al.	2009/0222444	A1	9/2009	Chowdhury et al.
2007/0136745	A1	6/2007	Garbow	2009/0271358	A1	10/2009	Lindahl
2007/0143567	A1	6/2007	Gorobets	2010/0030578	A1	2/2010	Siddique et al.
2007/0150606	A1	6/2007	Flinchem et al.	2010/0030638	A1	2/2010	Davis et al.
2007/0156747	A1	7/2007	Samuelson et al.	2010/0121845	A1	5/2010	Aravamudan et al.
2007/0157242	A1	7/2007	Cordray et al.	2010/0153380	A1	6/2010	Garg et al.
2007/0162934	A1	7/2007	Ropp et al.	2010/0241625	A1	9/2010	Aravamudan et al.
				2010/0293160	A1	11/2010	Aravamudan et al.
				2010/0306194	A1	12/2010	Evans
				2010/0325111	A1	12/2010	Aravamudan et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2011/0043652 A1 2/2011 King et al.  
 2011/0047213 A1 2/2011 Manuel  
 2011/0076994 A1 3/2011 Kim et al.  
 2011/0113249 A1 5/2011 Gelbard et al.  
 2011/0137789 A1 6/2011 Kortina et al.  
 2011/0179081 A1 7/2011 Ovsjanikov et al.  
 2011/0214148 A1 9/2011 Gossweiler  
 2011/0239250 A1 9/2011 Krakirian et al.  
 2012/0042386 A1 2/2012 Backer  
 2012/0221505 A1 8/2012 Evans et al.  
 2012/0226761 A1 9/2012 Emigh et al.  
 2014/0016872 A1 1/2014 Chao

FOREIGN PATENT DOCUMENTS

CA 1030505 5/1978  
 CA 1187197 5/1985  
 CA 1188811 6/1985  
 CA 1196082 10/1985  
 CA 1200911 2/1986  
 CA 2151458 6/1994  
 CA 2164608 12/1994  
 CA 2297039 1/1999  
 CA 2312326 6/1999  
 CN 1555191 12/2004  
 DE 2918846 11/1980  
 DE 3246225 6/1984  
 DE 3337204 4/1985  
 DE 3621263 1/1988  
 DE 3909334 9/1990  
 DE 4201031 7/1993  
 DE 19531121 2/1997  
 DE 19740079 3/1999  
 DE 19931046 1/2001  
 EP 0181058 5/1986  
 EP 0239884 10/1987  
 EP 0396062 11/1990  
 EP 0401930 12/1990  
 EP 0408892 1/1991  
 EP 0420123 4/1991  
 EP 0424648 5/1991  
 EP 0444496 9/1991  
 EP 0447968 9/1991  
 EP 0532322 3/1993  
 EP 0550911 7/1993  
 EP 0560593 9/1993  
 EP 0572090 12/1993  
 EP 0682452 11/1995  
 EP 0721253 7/1996  
 EP 0725539 8/1996  
 EP 0752767 1/1997  
 EP 0753964 1/1997  
 EP 0762751 3/1997  
 EP 0772360 5/1997  
 EP 0774866 5/1997  
 EP 0775417 5/1997  
 EP 0784405 7/1997  
 EP 0805594 11/1997  
 EP 0806112 11/1997  
 EP 0822718 2/1998  
 EP 0827340 3/1998  
 EP 0834798 4/1998  
 EP 0848554 6/1998  
 EP 0849948 6/1998  
 EP 0851681 7/1998  
 EP 0852442 7/1998  
 EP 0854645 7/1998  
 EP 0854654 7/1998  
 EP 0880856 12/1998  
 EP 0905985 3/1999  
 EP 0924927 6/1999  
 EP 0935393 8/1999  
 EP 0944253 9/1999  
 EP 0963119 12/1999  
 EP 0988876 3/2000

EP 1050794 11/2000  
 EP 1095504 5/2001  
 EP 1143691 10/2001  
 EP 1036466 3/2003  
 EP 1338967 8/2003  
 EP 1338976 8/2003  
 EP 1458193 9/2004  
 EP 1463307 9/2004  
 EP 1622054 2/2006  
 EP 1841219 1/2007  
 EP 1763233 3/2007  
 EP 1763233 A2 \* 3/2007 ..... H04H 60/33  
 EP 1810120 7/2007  
 EP 1810508 7/2007  
 EP 1955130 8/2008  
 EP 2016513 1/2009  
 EP 2062171 5/2009  
 FR 2662895 12/1991  
 GB 1554411 10/1979  
 GB 2034995 6/1980  
 GB 2126002 3/1984  
 GB 2185670 7/1987  
 GB 2256546 12/1992  
 GB 2264409 8/1993  
 GB 2309134 7/1997  
 HK 1035285 3/2005  
 JP 58137334 8/1983  
 JP 58196738 11/1983  
 JP 58210776 12/1983  
 JP 59141878 8/1984  
 JP 6061935 4/1985  
 JP 61050470 3/1986  
 JP 61074476 4/1986  
 JP 62060370 3/1987  
 JP 62060384 3/1987  
 JP 63234679 9/1988  
 JP 1307944 12/1989  
 JP 2048879 2/1990  
 JP 03063990 3/1991  
 JP 04227380 8/1992  
 JP 4335395 11/1992  
 JP 05183826 7/1993  
 JP 05284437 10/1993  
 JP 06021907 1/1994  
 JP 07020254 1/1995  
 JP 07050259 2/1995  
 JP 07076592 3/1995  
 JP 07123326 5/1995  
 JP 07147657 6/1995  
 JP 07288759 10/1995  
 JP 07321748 12/1995  
 JP 0832528 2/1996  
 JP 0832538 2/1996  
 JP 08125497 5/1996  
 JP 08251122 9/1996  
 JP 08275077 10/1996  
 JP 937168 2/1997  
 JP 09037151 2/1997  
 JP 09037172 2/1997  
 JP 09102827 4/1997  
 JP 10143340 5/1998  
 JP 10143349 5/1998  
 JP 10512420 11/1998  
 JP 2838892 12/1998  
 JP 2001213595 8/2001  
 JP 2001513595 9/2001  
 JP 2002108918 4/2002  
 JP 2002279969 9/2002  
 JP 2003250146 9/2003  
 JP 2003533139 11/2003  
 JP 2004502213 1/2004  
 JP 2004192451 8/2004  
 JP 2004254077 9/2004  
 JP 2005505070 2/2005  
 JP 2005196663 7/2005  
 JP 2005520268 7/2005  
 JP 2005275740 10/2005  
 JP 2005338933 12/2005  
 JP 2006024212 1/2006

(56)

## References Cited

FOREIGN PATENT DOCUMENTS			WO	WO	
			WO	WO1996041477	12/1996
			WO	WO1996041478	12/1996
			WO	WO1997002702	1/1997
			WO	WO1997004595	2/1997
			WO	WO1997007656	3/1997
			WO	WO1997013368	4/1997
			WO	WO199718675	5/1997
			WO	WO1997017774	5/1997
			WO	WO199726612	7/1997
			WO	WO199741673	11/1997
			WO	WO199742763	11/1997
			WO	WO199748230	12/1997
			WO	WO199749237	12/1997
			WO	WO199749241	12/1997
			WO	WO199749242	12/1997
			WO	WO199806219	2/1998
			WO	WO199810589	3/1998
			WO	WO199816062	4/1998
			WO	WO199817064	4/1998
			WO	WO199820675	5/1998
			WO	WO199826569	6/1998
			WO	WO199826584	6/1998
			WO	WO199827723	6/1998
			WO	WO199828906	7/1998
			WO	WO199831148	7/1998
			WO	WO199841020	9/1998
			WO	WO199843183	10/1998
			WO	WO199847279	10/1998
			WO	WO199848566	10/1998
			WO	WO199856172	12/1998
			WO	WO199856173	12/1998
			WO	WO199901984	1/1999
			WO	WO199904561	1/1999
			WO	WO199914947	3/1999
			WO	WO199929109	6/1999
			WO	WO199930491	6/1999
			WO	WO199931480	6/1999
			WO	WO199945700	9/1999
			WO	WO199945701	9/1999
			WO	WO199945702	9/1999
			WO	WO199952285	10/1999
			WO	WO199956473	11/1999
			WO	WO199960789	11/1999
			WO	WO2000004706	1/2000
			WO	WO2000005889	2/2000
			WO	WO2000011865	3/2000
			WO	WO2000013415	3/2000
			WO	WO2000016548	3/2000
			WO	WO2000027122	5/2000
			WO	WO2000028734	5/2000
			WO	WO2000033160	6/2000
			WO	WO2000033224	6/2000
			WO	WO2000033560	6/2000
			WO	WO2000033573	6/2000
			WO	WO2000049801	8/2000
			WO	WO2000070505	11/2000
			WO	WO2000079798	12/2000
			WO	WO2001001677	1/2001
			WO	WO2001006784	1/2001
			WO	WO2001015438	3/2001
			WO	WO2001035662	5/2001
			WO	WO2001046843	6/2001
			WO	WO2001089213	11/2001
			WO	WO2001093096	12/2001
			WO	WO2002003227	2/2002
			WO	WO2002031731	4/2002
			WO	WO2002082814	10/2002
			WO	WO2002084992	10/2002
			WO	WO2003030528	4/2003
			WO	WO2004010326	1/2004
			WO	WO2004031931	4/2004
			WO	WO2000054264	6/2004
			WO	WO2004052010	6/2004
			WO	WO2005033967	4/2005
			WO	WO2005054982	6/2005
			WO	WO2005084235	9/2005
			WO	WO2006052959	5/2006
			WO	WO2006052966	5/2006
			WO	WO2006074305	7/2006
JP	2006507758 A	3/2006			
JP	2006510270	3/2006			
JP	2007102484	4/2007			
JP	2007158925	6/2007			
JP	2007257232	10/2007			
JP	2007274605	10/2007			
JP	4062577	3/2008			
JP	2008527855	7/2008			
JP	2009534761	9/2009			
JP	2010503931	2/2010			
WO	WO1986001359	2/1986			
WO	WO1986001962	3/1986			
WO	WO1987003766	6/1987			
WO	WO1988004057	6/1988			
WO	WO1988004507	6/1988			
WO	WO1989002682	3/1989			
WO	WO1989003085	4/1989			
WO	WO1989012370	12/1989			
WO	WO1990001243	2/1990			
WO	WO1990015507	12/1990			
WO	WO1991000670	1/1991			
WO	WO1991005436	4/1991			
WO	WO1991018476	11/1991			
WO	WO1992004801	3/1992			
WO	WO1993004473	3/1993			
WO	WO1993005452	3/1993			
WO	WO1993011638	6/1993			
WO	WO1993011639	6/1993			
WO	WO1993011640	6/1993			
WO	WO1993023957	11/1993			
WO	WO1994013107	6/1994			
WO	WO1994014281	6/1994			
WO	WO1994014282	6/1994			
WO	WO1994014283	6/1994			
WO	WO1994014284	6/1994			
WO	WO1994021085	9/1994			
WO	WO1994023383	10/1994			
WO	WO1994029811	12/1994			
WO	WO1995001056	1/1995			
WO	WO1995001057	1/1995			
WO	WO1995001058	1/1995			
WO	WO1995001059	1/1995			
WO	WO1995006389	3/1995			
WO	WO1995007003	3/1995			
WO	WO1995010910	4/1995			
WO	WO1995015649	6/1995			
WO	WO1995015657	6/1995			
WO	WO1995015658	6/1995			
WO	WO1995016568	6/1995			
WO	WO1995019092	7/1995			
WO	WO1995026608	10/1995			
WO	WO1995028055	10/1995			
WO	WO1995028799	10/1995			
WO	WO1995030961	11/1995			
WO	WO1995031069	11/1995			
WO	WO1995032583	11/1995			
WO	WO1995032585	11/1995			
WO	WO1996007270	3/1996			
WO	WO1996008109	3/1996			
WO	WO1996008113	3/1996			
WO	WO1996009721	3/1996			
WO	WO1996013932	5/1996			
WO	WO1996013935	5/1996			
WO	WO1996017467	6/1996			
WO	WO1996017473	6/1996			
WO	WO1996021990	7/1996			
WO	WO1996026605	8/1996			
WO	WO1996027270	9/1996			
WO	WO1996027982	9/1996			
WO	WO1996031980	10/1996			
WO	WO1996034467	10/1996			
WO	WO1996034486	10/1996			
WO	WO1996034491	10/1996			
WO	WO1996038799	12/1996			
WO	WO1996041471	12/1996			

(56)

## References Cited

## FOREIGN PATENT DOCUMENTS

WO	WO2007025148	3/2007
WO	WO2007025149	3/2007
WO	WO2007062035	5/2007
WO	2007078634 A1	7/2007
WO	2007078739 A2	7/2007
WO	2007078846 A1	7/2007
WO	2007120239 A2	10/2007
WO	WO2007118038	10/2007
WO	WO2007124429	11/2007
WO	WO2007124436	11/2007
WO	WO2007131058	11/2007
WO	WO2008034057	3/2008
WO	WO2008062547	5/2008
WO	WO2008091941	7/2008
WO	WO2008063987	8/2008
WO	WO2008148012	12/2008
WO	WO2009070193	6/2009

## OTHER PUBLICATIONS

U.S. Appl. No. 11/324,202, filed Dec. 29, 2005, Yates, Douglas.  
 U.S. Appl. No. 11/412,549, filed Apr. 27, 2006, Ellis et al.  
 U.S. Appl. No. 11/541,299, filed Sep. 29, 2006, Shannon et al.  
 U.S. Appl. No. 60/548,589, filed Sep. 1, 2005, Flinchem.  
 "Addressable Converters: A New Development at CableData," Via Cable, vol. 1, No. 12, Dec. 1981 (11 pages).  
 "Bell Atlantic Buys Cable TV Company for \$22bn," Financial Times (London), Oct. 14, 1993 p. 65.  
 "Cable Television Equipment," Jerrold Communications Publication, dated 1992 and 1993, pp. 8-2.1 to 8-6 and 8-14.1 to 8-14.3.  
 "Computer Network: Current Status and Outlook on Leading Science and Technology," Bureau of Science & Technology (Japan), vol. 1, Dec. 1986 (326 pages).  
 Creation/Modification of the Audio Signal Processor Setup for a PC Audio Editor, IBM Technical Disclosure Bulletin, vol. 30, No. 10, Mar. 1988, pp. 367-376.  
 "D2B-Home Bus Fur Audio and Video," Selektor, Apr. 1990, pp. 10, 12.  
 "Dial M for Movie", Funkschau 11/94 Perspektiven, Video on Demand, pp. 78-79. (English language translation attached).  
 "Digital Video Broadcasting (DVB); DVB specification for data broadcasting," European Telecommunication Standards Institute, Draft EN 301 192 V1.2.1 (Jan. 1999) (33 pages).  
 "Duck Tales,"(1987)[TV Series 1987-1990], "Internet Movie Database (IMDB) [Retrieved on Apr. 7, 2007].  
 "Enhanced Content Specification," "ATVEF," from the Internet at <http://www.atvef.com/library/spec.html>, printed Aug. 22, 2001, the document bears a Copyright date of 1998, 1999, 2000 (41 pages).  
 "European Telecommunications Standards: Digital Broadcasting Systems For Television Sound and Data Services; Specification for Service Information (SI) in Digital Video Broadcasting (DVB) Systems," European Telecommunications Standards Institute, Dec. 1994 (64 pages).  
 "Facsimile Transmission," NHK Research Monthly Report, Dec. 1987 (Unknown author) (78 pages).  
 "Getting Started" Installation Guide, "Using StarSight 1" Manual, and Remote Control "Quick Reference Guide." (93 pages).  
 "Interactive Computer Conference Server," IBM Technical Bulletin, vol. 34, No. 7A, Dec. 1991, pp. 375-377.  
 "Interface Device for Conventional TVs to Improve Functionality," IBM Technical Disclosure Bulletin, vol. 36, No. 7, Jul. 1993, pp. 53-54.  
 James Sorce, David Fay, Brian Raila and Robert Virzi, "Designing a Broadband Residential Entertainment Service: A Case Study," GTE Laboratories Incorporated, undated, pp. 141-148.  
 "Lists> What's On Tonite! TV Listings (fwd)," Internet article (Online), Jan. 28, 1995, XP 002378869 [Retrieved on Apr. 28, 2006].  
 "MSI Datacasting Systems," TV Communications Journal, Jan. 1973.

"Open TV fur Interaktives Fernsehen," Trend and Technik, 9-95 RFE, p. 100. (English language translation attached).  
 "Open TV Launches OpenStreamer™ Technology for Broadcasters to Deliver First Ever Real-Time Digital Interactive Television," from the Internet at <http://www.opentv.com/news/openstreamerpressfinal.htm>. printed on Jun. 28, 1999, the "Prevue Networks and OpenTV(R) Agree to Work Together on Deploying Interactive Program Guides Worldwide," from the internet at <http://www.opentv.com/news/prevuefinal.htm>, printed on Jun. 28, 1999 (2 pages).  
 "Probe XL Brochure, Auto Tote Systems Inc.," (Newark, Delaware) (undated) 57 pgs.  
 "Prodigy Launches Interactive TV Listing", Apr. 22, 1994 public Broadcasting Report.  
 "Review of Personalization Technologies: Collaborative Filtering vs. ChoiceStream's Attributized Bayesian Choice Modeling," Technology Brief, ChoiceStream Technologies, Cambridge, MA (13 pages).  
 "Rewind, reply and unwind with new high-tech TV devices," by Lawrence J. Magid, LA Times. This document was printed from the internet on Jun. 6, 1999 and bears a date of May 19, 1999 (4 pages).  
 Technological Examination & Basic Investigative Research Report on Image Databases, Japan Mechanical Engineering Organization Int'l Society for the Advancement of Image Software. Japan, Mar. 1988.  
 "Technology: Turn on, tune in and print out—An experimental interactive television service is set to alter our viewing habits," Financial Times (London), Oct. 14, 1993, p. 11.  
 "The New Media and Broadcast Policy: An Investigation & Research Conference Report on Broadcasting Diversification," Radio Regulatory Bureau, Japan Ministry of Posts & Telecommunications, Mar. 1982 (114 pages).  
 "TV Listings Functional Spec.," Time Video Information Services, Inc., undated (11 pages).  
 "Using StarSight 2," Instruction Manual, StarSight Telecast, Inc., StarSight CB 1500 Customer Letter, 1994.  
 "Windows 98 Feature Combines TV, Terminal and the Internet," New York Times, Aug. 18, 1998.  
 A Model of a Trust-Based Recommendation System on a Social Network—Published Date: Oct. 18, 2007.  
 Ardissono, L. et al., "User Modeling and Recommendation Techniques for Personalized Electronic Program Guides," Personalized Digital Television, Editors: Ardissono, et al., Kluwer Academic Press, 2004 (27 pages).  
 Attributized Bayesian Choice Modeling, Technology Brief, ChoiceStream Technologies, Cambridge, MA.  
 Benes, V.E., "Mathematical Theory of Connecting Networks and Telephone Traffic," Academic Press, NY, 1965 (4 pages).  
 C. de Kerchove and P. Dooren. The PageTrust Algorithm: how to rank web pages when negative links are allowed? In Proc. SIAM Int. Conf. on Data Mining, pp. 346352, 2008.  
 Comcast Corporation et al. v. Veveo, Inc., Patent Owner's Submission of Mandatory Notice IPR2017-00715 dated Feb. 9, 2017 (5 pages).  
 Comcast Corporation et al. v. Veveo, Inc., Petition 1 for Inter Partes Review IPR2017-00715 dated Jan. 19, 2017 (90 pages).  
 Comcast Corporation et al. v. Veveo, Inc., Petition 2 for Inter Partes Review IPR2017-00716 dated Jan. 19, 2017(80 pages).  
 Comcast Corporation et al., v. Rovi Corporation et al. (Civil Action No. 16-cv-3852, Southern District of New York), "Amended Complaint," dated May 26, 2016 (42 pages).  
 Comcast Corporation et al., v. Rovi Corporation et al. (Civil Action No. 16-cv-3852, Southern District of New York), "Complaint," dated May 23, 2016 (42 pages).  
 Complaint in Veveo, Inc. v. Verizon Services Corp., Verizon Communications Inc., and Verizon Data Services India Pvt. Ltd., U.S. District Court Southern District of New York, Civil Action No. 10-CIV-6709 (JFK), filed Sep. 9, 2010, pp. 1-14.  
 Computing and Applying Trust in Web-Based Social Networks—Published Date: Apr. 11, 2005 <http://test.lib.umd.edu/drum/bitstream/1903/2384/1/umi-umd-2244.pdf>.  
 Dalianis, "Improving Search Engine Retrieval Using a Compound Splitter for Swedish," Abstract of Presentation at Nodalida 2005, 15th Nordic Conference on Computational Linguistics, Joensuu,

(56)

**References Cited**

## OTHER PUBLICATIONS

Finland, May 21-22, 2005. Retrieved Jan. 5, 2006 from <http://phon.joensuu.fi/nodalida/abstracts/03.shtml>, 3 pages.

Data Services India Pvt. Ltd., U.S. District Court Southern District of New York, Civil Action No. 10-CIV-6709 (JFK), filed Sep. 9, 2010, pp. 1-14.

Declaration of Dr. Edward A. Fox in Support of Petition 1 dated Jan. 17, 2017 (246 pages).

Declaration of Dr. Edward A. Fox in Support of Petition 2 dated Jan. 17, 2017 (142 pages).

Digital Video Broadcasting, <http://www.dvb.org> (Oct. 12, 2007) (2 pages).

Duff, I.S. et al., "Direct Methods for Sparse Matrices," Monographs on Numerical Analysis, Oxford Science Publications, Clarendon Press, Oxford, 1986 (7 pages).

European Search Report for 06838179.7, dated Dec. 9, 2009, 7 pages.

First Amended Complaint in *Veveo, Inc. v. Verizon Services Corp., Verizon Communications Inc., and Verizon Data Services LLC*, U.S. District Court Southern District of New York, Civil Action No. 10-CIV-6709 (JFK), filed Nov. 16, 2010, 16 pages.

Flinchem, E., U.S. Appl. No. 60/548,589, filed Sep. 1, 2005.

Gadd T.N. PHON IX: the Algorithm Program 24(4). Oct. 1990, pp. 363-369.

Garey, M.R. et al., "Computers and Intractability a Guide to the Theory of NP-Completeness," W.H. Freeman and Co., New York, 1979 (2 pages).

Good, N. et al., "Combining Collaborative Filtering with Personal Agents for Better Recommendations," Proc. 16th Natl. Conf. on Artificial Intelligence, Orlando, Florida, Jul. 18-22, 1999, pp. 439-446.

Guha, R., et al., "Propagation of Trust and Distrust", WWW2004, May 17-22, 2004, pp. 403-412.

Human Factors in Computing Systems, Apr. 2005, pp. 1845-1848, 4 pages, retrieved from URL:<http://portal.acm.org/citation.cfm?id=1056808.1057037>.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2005/040415, dated Nov. 27, 2006, 6 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2005/040424, mailing date of Nov. 21, 2006, 6 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2005/040517, mailed Jun. 13, 2008, 4 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2006/025249, mailed Jan. 29, 2008, 7 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2006/033204, mailed Sep. 21, 2007, 8 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2006/033257, dated Mar. 26, 2008, 5 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2006/033258, mailed Mar. 26, 2008 (6 pages).

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2006/040005 mailed Jul. 3, 2007 (8 pages).

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2007/065703 mailed Jan. 25, 2008 (5 pages).

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2007/067100, mailed Mar. 7, 2008 (5 pages).

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2007/067114, dated Jul. 2, 2008, 6 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2007/068064, dated Jul. 7, 2008, 9 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2007/084500, dated May 20, 2008, 6 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2008/051789, mailed Jul. 14, 2008 (7 Pages).

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2008/064730, dated Sep. 8, 2008, 5 pages.

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2012/034780, dated Jul. 16, 2012 (2 pages).

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2006/045053, mailed Jul. 24, 2004 (10 pages).

International Search and Written Opinion issued by the U.S. Patent and Trademark Office as the International Searching Authority for International Application No. PCT/US2007/078490, mailed Jul. 3, 2008 (6 pages).

International Search Report and Written Opinion for PCT/US06/25249 dated Jan. 29, 2008.

International Search Report and Written Opinion for PCT/US06/33204 dated Sep. 21, 2007.

International Search Report and Written Opinion for PCT/US06/40005 dated Jul. 3, 2007.

International Search Report and Written Opinion for PCT/US2005/040415 dated Nov. 27, 2006.

International Search Report and Written Opinion for PCT/US2005/040424 dated Nov. 21, 2006.

International Search Report and Written Opinion for PCT/US2005/040517 dated Jun. 13, 2008.

International Search Report and Written Opinion for PCT/US2006/025249 dated Jan. 29, 2008.

International Search Report and Written Opinion for PCT/US2006/030073 dated Jul. 7, 2008.

International Search Report and Written Opinion for PCT/US2006/033204 dated Sep. 21, 2007, 8 pages.

International Search Report and Written Opinion for PCT/US2006/033257 dated Mar. 26, 2008.

International Search Report and Written Opinion for PCT/US2006/033258 dated Mar. 26, 2008.

International Search Report and Written Opinion for PCT/US2006/045053 dated Jul. 24, 2008.

International Search Report and Written Opinion for PCT/US2007/065703 dated Jan. 25, 2008.

International Search Report and Written Opinion for PCT/US2007/067100 dated Mar. 7, 2008.

International Search Report and Written Opinion for PCT/US2007/067114 dated Jul. 2, 2008.

International Search Report and Written Opinion for PCT/US2007/068064 dated Jul. 7, 2008.

(56)

## References Cited

## OTHER PUBLICATIONS

International Search Report and Written Opinion for PCT/US2007/078490 dated Jul. 3, 2008.

International Search Report and Written Opinion for PCT/US2007/084500 dated May 20, 2008.

International Search Report and Written Opinion for PCT/US2008/051789 dated Jul. 14, 2008.

International Search Report and Written Opinion for PCT/US2008/064730 dated Sep. 8, 2008.

International Search Report and Written Opinion for PCT/US2012/034780 dated Jul. 16, 2012.

International Search Report and Written Opinion, International Application No. PCT/US06/25249, mailed Jan. 29, 2008 (7 pages).

International Search Report and Written Opinion, International Application No. PCT/US06/33204, mailed Sep. 21, 2007 (6 pages).

International Search Report and Written Opinion, International Application No. PCT/US07/65703, mailed Jan. 25, 2008 (5 pages).

International Search Report and Written Opinion, International Application No. PCT/US07/67100, mailed Mar. 7, 2008 (6 pages).

International Search Report and Written Opinion, International Application No. PCT/US06/40005, mailed Jul. 3, 2007 (8 pages).

International Search Report dated May 28, 2009, Application No. PCT/US2008/0011646 (4 pages) (now WO 2009/070193).

International Search Report, International Application No. PCT/US06/25249, mailed Jan. 29, 2008 (2 pages).

International Search Report, International Application No. PCT/US06/33204, mailed 21 Sept.

International Search Report, International Application No. PCT/US06/33257, mailed Mar. 26, 2007 (2 pages).

IPR2019-00237 Final Written Decision U.S. Pat. No. 7,779,011, Aug. 12, 2020 (80 pages).

IPR2019-00237 Notice of Disposition of Sealed Final Written Decision U.S. Pat. No. 7,779,011, Jun. 30, 2020 (3 pages).

IPR2019-00239 Final Written Decision U.S. Pat. No. 7,779,011, Jun. 30, 2020 (69 pages).

IPR2019-00290 Final Written Decision U.S. Pat. No. 7,937,394, Aug. 12, 2020 (79 pages).

IPR2019-00290 Notice of Disposition of Sealed Final Written Decision U.S. Pat. No. 7,937,394, Jun. 30, 2020 (3 pages).

IPR2019-00292 Final Written Decision U.S. Pat. No. 7,937,394, Jun. 30, 2020 (69 pages).

ITC Investigation of Certain Digital Video Receivers and Hardware and Software Components Thereof, Investigation No. 337 TA 1001, formerly Investigation No. 337 TA 3135, "Revised Unopposed Motion for Leave to File a Revised Joint List of Disputed Claim Terms and Proposed Constructions" as submitted on Oct. 10, 2016 (18 pages).

J. Kleinberg, Authoritative sources in a hyperlinked environment. *Journal of the ACM (JACM)* 46(5):604-632, 1999.

J. Kunegis, A. Lornrnatzsch, and C. Bauckhage. The slashdot zoo: mining a social network with negative edges. In *WWW '09: Proceedings of the 18th international conference on Worldwide web*, pp. 741-750, 2009.

Kurapati, et al., "A Multi-Agent TV Recommender," In *Proceedings of the UM 2001 Workshop "Personalization in Future TV,"* 2001, 8 pages.

L. Page, S. Brin, R. Motwani, and T. Winograd. The page rank citation ranking: Bringing order to the web. Technical Report, Stanford University, 1998.

Lindgren, B.W. et al., "Introduction to Probability and Statistics," MacMillan Publishing Co., New York, New York, 1978 (23 pages).

Luenberger, D.G., "Linear and Nonlinear Programming," Second Ed., Addison-Wesley Publishing Company, Reading, MA, 1989 (51 pages).

Mackenzie et al. "Letterwise: Prefix-Based Disambiguation for Mobile Text Input, Proceedings of the ACM Symposium on User Interface Software and Technology—UIST 2001" (pp. 111-120).

Matthom, "Text Highlighting in Search Results", Jul. 22, 2005. Retrieved from [www.matthom.com/archive/2005/01/22/text-highlighting-in-search-results](http://www.matthom.com/archive/2005/01/22/text-highlighting-in-search-results) on Jun. 23, 2006 (4 pages).

Mokotoff, Soundexing and Genealogy, Available at <http://www.avotaynu.com/soundex.html>, retrieved Mar. 19, 2008, last updated Sep. 8, 2007 (6 pages).

Murray et al., "Inferring Demographic Attributes of Anonymous Internet Users," *WEBKDD '99 LNAI*, 1836, pp. 7-20, 2000.

Nardi, et al., "Integrating Communication and Information Through Contact Map," *Communications of the ACM*, vol. 45, No. 4, Apr. 2002, 7 pages, retrieved from URL:<http://portal.acm.org/citation.cfm?id=505251>>PCT/US06/25249, mailed Jan. 29, 2008 (4 pages).

Nemhauser, G.L. et al., "Integer and Combinational Optimization," John Wiley and Sons, New York, 1988 (2 pages).

Office Action for U.S. Appl. No. 11/204,546 mailed Jul. 8, 2008, 30 pages.

Office Action for U.S. Appl. No. 11/204,546 mailed Mar. 3, 2009, 26 pages.

Office Action for U.S. Appl. No. 11/204,546 mailed Sep. 17, 2009, 34 pages.

Office Action issued Jul. 21, 2010 in U.S. Appl. No. 11/986,461.

Office Action issued Jul. 8, 2010 in U.S. Appl. No. 11/986,463.

Press Release from Tegic Communications, Tegic Communications is awarded patent for Japanese T9(R) text input software from the Japan Patent Office, Oct. 12, 2004. Retrieved Nov. 18, 2005 from [http://www.tegic.com/press\\_view.html?release\\_num=55254242](http://www.tegic.com/press_view.html?release_num=55254242) (4 pages).

Review of Personalization Technologies: Collaborative Filtering vs. ChoiceStream's Attributized Bayesian Choice Modeling, Technology Brief, ChoiceStream Technologies, Cambridge, MA, Feb. 2004, 13 pages.

Roe, et al., "Mapping UML Models Incorporating OCL Constraints into Object-Z," Technical Report, Sep. 2003, Department of Computing, Imperial College London, [http://www.doc.ic.ac.uk/ar3/TechnicalReport2003\\_9.pdf](http://www.doc.ic.ac.uk/ar3/TechnicalReport2003_9.pdf), retrieved Jul. 12, 2007, 17 pages.

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "Joint Stipulated Motion for Dismissal of Plaintiff's Claims Against Technicolor SA," dated Aug. 3, 2016 (314 pages).

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "Arris Defendants' Answer to First Amended Complaint," dated Jun. 3, 2016 (71 pages).

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "Comcast Defendants' Answer to First Amended Complaint," dated Jun. 3, 2016 (91 pages).

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "Complaint for Patent Infringement," dated Apr. 1, 2016 (174 pages).

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "Defendant Technicolor USA, Inc.'s and Technicolor Connected Home USA LLC's Answer and Defenses to Plaintiff's First Amended Complaint," dated Jun. 3, 2016 (205 pages).

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "Disclosure of Asserted Claims and Infringement Contentions," dated Jun. 16, 2016 (5 pages).

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "Exhibit G 8,433,696—VEV-131 Con—Rovi Infringement Contention\_Arris" dated Jun. 16, 2016 (40 pages).

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "Exhibit G.1 8,433,696—VEV-131 Con—Rovi Infringement Contention Pace" dated Jun. 16, 2016 (40 pages).

*Rovi Guides, Inc et al. v. Comcast Corporation et al.* (Case No. 2:16-cv-321, Eastern District of Texas Marshall Division), "First Amended Complaint for Patent Infringement," dated Apr. 25, 2016 (178 pages).

S. Kamvar, M. Schlosser, and H. Garcia-Molina. The EigenTrust algorithm for reputation management in P2P networks. In *Proc. Int. Conf. on World Wide Web*, pp. 640-651, 2003.

(56)

## References Cited

## OTHER PUBLICATIONS

Silfverberg et al. "Predicting Text Entry Speed on Mobile Phones," Proceedings of the ACM Conference on Human Factors in Computing Systems—CHI 2000. (pp. 9-16).

Supp. European Search Report for PCT/US2005040415 dated Aug. 11, 2009, 15 pages.

Supp. European Search Report for PCT/US2005040424 dated Aug. 20, 2009, 13 pages.

Supplemental European Search Report and Written Opinion for EP05826129.8, dated Aug. 11, 2009, 15 pages.

Supplemental European Search Report and Written Opinion for EP06838179.7, dated Dec. 9, 2009, 7 pages.

Supplemental European Search Report and Written Opinion for EP07761026.9, dated Jan. 28, 2010, 8 pages.

Supplemental European Search Report and Written Opinion for EP07842499, dated Aug. 26, 2010, 6 pages.

Supplemental European Search Report for 05826114.0 dated Aug. 20, 2009, 13 pages.

Supplemental European Search Report for 05826129.8 dated Aug. 11, 2009, 15 pages.

Supplemental European Search Report for 06838179.7 dated Dec. 9, 2009, 7 pages.

Supplemental European Search Report for 07761026.9 dated Jan. 28, 2010, 8 pages.

Supplemental European Search Report for EP 07761026.9 dated Jan. 28, 2010, 8 pages.

Supplemental European Search Report for EP 07842499 dated Aug. 26, 2010.

Supplemental Partial European Search Report for EP05826114.0 dated Aug. 20, 2009, 13 pages.

Supplementary European Search Report and Written Opinion for European Patent Application No. 07842499, dated Aug. 26, 2010, 6 pages.

Supplementary European Search Report for PCT/US2005/040415 dated Aug. 11, 2009.

Supplementary European Search Report for PCT/US2005/040424 dated Aug. 20, 2009.

Talbot, David. "Soul of a New Mobile Machine." Technology Review: The Design Issue May/June 2007. (pp. 46-53).

Tegic Communications, Press Release, "TEGIC Communications is Awarded Patent for Japanese T9® Text Input Software from the Japanese Patent Office," Oct. 12, 2004, [http://www.tegic.com/press\\_view.html?release\\_num=55254242](http://www.tegic.com/press_view.html?release_num=55254242), retrieved Nov. 18, 2005.

Trust- and Distrust-Based Recommendations for Controversial Reviews—Published Date: 2009.

Trust-Based Recommendation Systems: An Axiomatic Approach—Published Date: Apr. 21-25, 2008.

Trust-Based Recommendations for Publications—A Multi-Layer Network Approach—Published Date: 2006 [http://www.uni-bamberg.de/fileadmin/uni/fakultaeten/wiailehrstuehle/kulturinformatik/Publikationen/Hess\\_Trust\\_Based\\_Recommendations\\_for\\_Publications-A\\_Multi-Layer\\_Network\\_Aooreach.pdf](http://www.uni-bamberg.de/fileadmin/uni/fakultaeten/wiailehrstuehle/kulturinformatik/Publikationen/Hess_Trust_Based_Recommendations_for_Publications-A_Multi-Layer_Network_Aooreach.pdf).

Turski et al., "Inner Circle—People Centered Email Client," CHI 2005 Conf. on Human Factors in Computing Systems, Apr. 2005, pp. 1845-1848, retrieved from <http://portal.acm.org/citation.fcm?id=1056808.1057037>, 4 pages.

U.S. Appl. No. 11/855,661, filed Sep. 14, 2007.

U.S. Appl. No. 11/862,917, filed Sep. 27, 2007.

U.S. Appl. No. 11/939,086, filed Nov. 13, 2007.

U.S. Appl. No. 12/018,566, filed Jan. 23, 2008.

U.S. Appl. No. 60/548,589, filed Feb. 27, 2004.

Verizon's Answer to First Amended Complaint and Counterclaims in *Veveo, Inc. v. Verizon Services Corp., Verizon Communications Inc., and Verizon Data Services LLC*, U.S. District Court Southern District of New York, Civil Action No. 10-CIV-6709 (JFK), filed Dec. 9, 2010, pp. 1-17.

*Veveo, Incorporated, v. Comcast Corporation et al.* in the U.S. District Court for the District of Massachusetts under Case No. 1:18-cv-10056, Jan. 10, 2018 (59 pages).

Villani, et al., Keystroke Biometric Recognition Studies on Long-Text Input under Ideal and Application-Oriented Conditions, Proceedings of Student/Faculty Research Day, CSIS, Pace University, May 2006, pp. C3.1-C3.8, retrieved from URL: <http://www.csis.pace.edu/~ctappert/srd2006/c3.pdf>, p. 6, para 6.

Wikipedia's entry for Levenshtein distance (n.d.). Retrieved Nov. 15, 2006 from [http://en.wikipedia.org/wiki/Levenshtein\\_distance](http://en.wikipedia.org/wiki/Levenshtein_distance) (9 pages).

Written Opinion of the International Searching Authority, International Application No. PCT/US06/33257, mailed Mar. 26, 2008 (4 pages).

Written Opinion of the International Searching Authority, International Application No. PCT/US06/33258, mailed Mar. 26, 2008 (4 pages).

Written Opinion of the International Searching Authority, International Application No. PCT/US06/25249, mailed Jan. 29, 2008 (4 pages).

Written Opinion of the International Searching Authority, International Application No. PCT/US06/33204, mailed Sep. 21, 2007 (3 pages).

Written Opinion of the International Searching Authority, International Application No. PCT/US06/40005, mailed Jul. 3, 2007 (4 Pages).

Written Opinion of the International Searching Authority, International Application No. PCT/US07/65703, mailed Jan. 25, 2008 (4 pages).

Written Opinion of the International Searching Authority, International Application No. PCT/US07/67100, mailed Mar. 7, 2008 (3 pages).

Written Opinion of the International Searching Authority, International Application No. PCT/US06/25249, mailed Jan. 29, 2008 (4 pages) Combined With ISR to Make One Document (Apr. 27, 2015).

Zimmerman, et al., "TV Personalization System Design of a TV Show Recommender Engine and Interface," In Liliana Ardissono, Alfred Kobsa, Mark Maybury (eds) *Personalized Digital Television: Targeting Programs to Individual Viewers*, Kluwer: 27-52; 2004, 29 pages.

\* cited by examiner

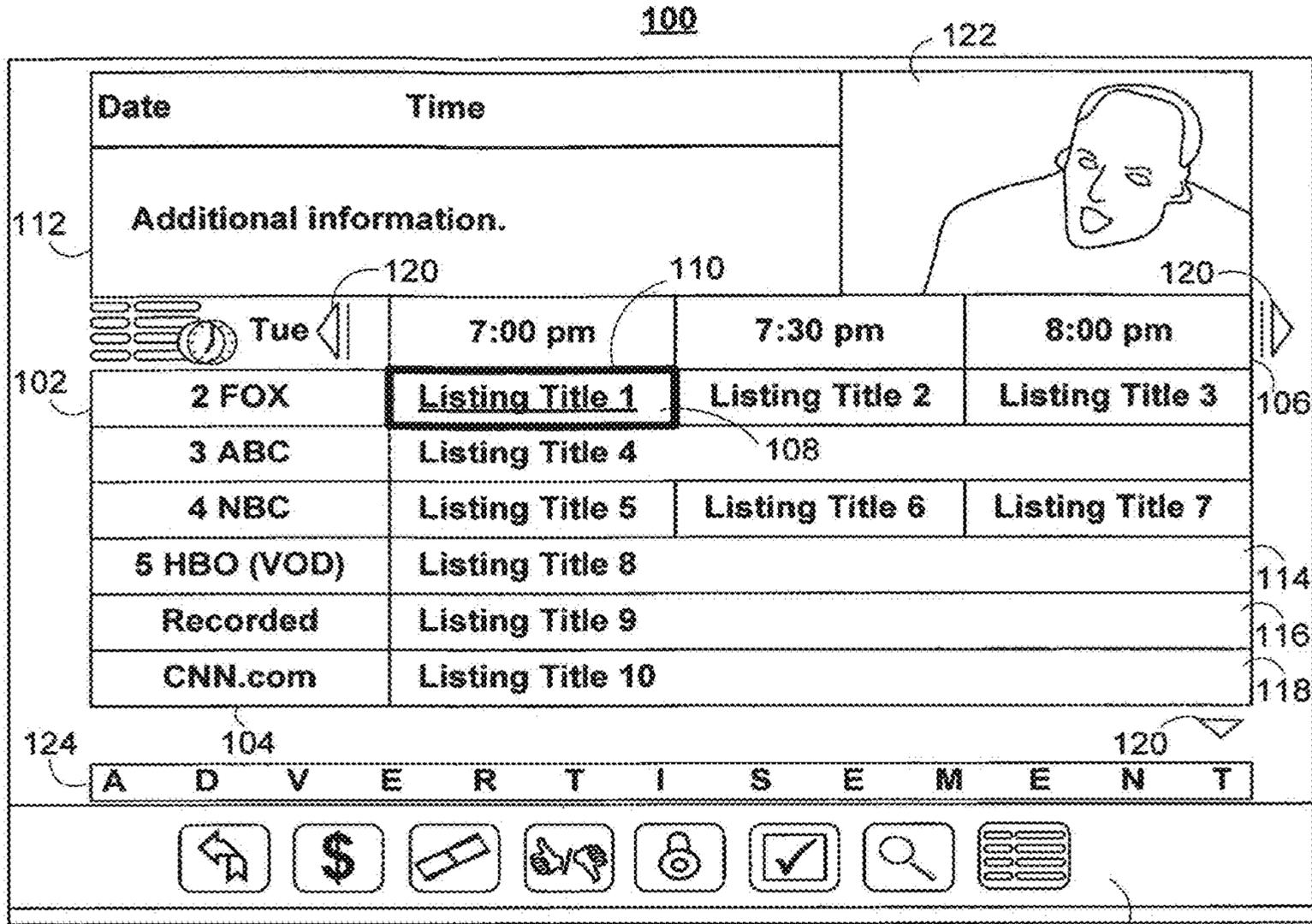


FIG. 1

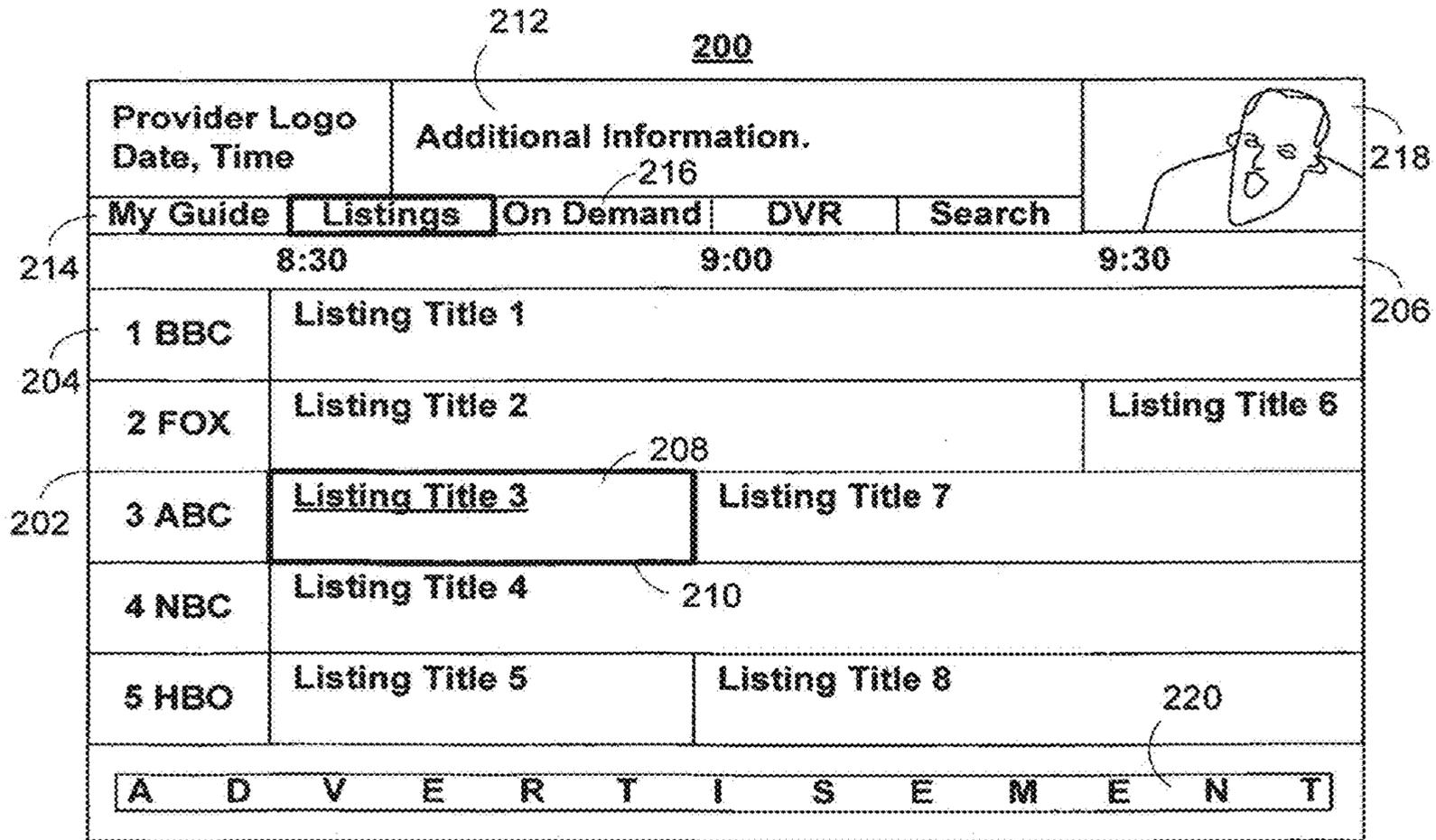


FIG. 2

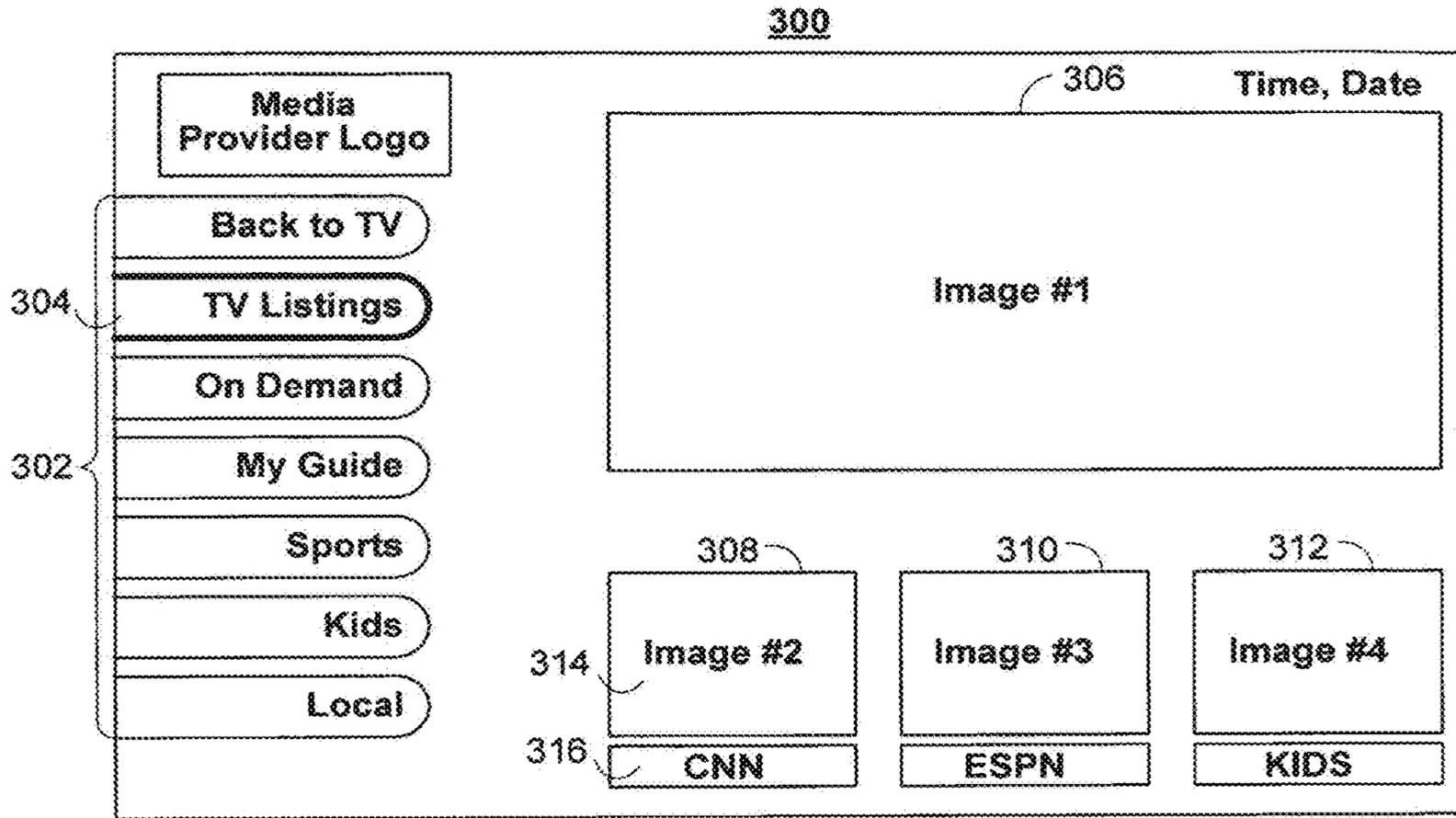


FIG. 3

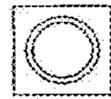
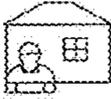
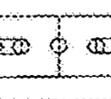
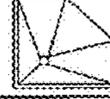
404 Provider ID Date/Time		402 My Guide Additional Information about user selection				
My Guide	Listings	On Demand	DVR	Search		
On Now		406 On Next		408 Hot List		
	Title 1 Time Channel ID		Title 5 Time Channel ID		Title 9 Time Channel ID	
	Title 2 Time Channel ID		Title 6 Time Channel ID		Title 10 Time Channel ID	
	Title 3 Time Channel ID		Title 7 Time Channel ID		Title 11 Time Channel ID	
	Title 4 Time Channel ID		Title 8 Time Channel ID		Title 12 Time Channel ID	
A D V E R T I S E M E N T						

FIG. 4

**500**

Provider ID Date/Time	My Guide Additional Information about				
My Guide	Listings	On Demand	502		
On Now		On Next			
	Title 1 Time Channel ID		Title 5 Time Channel ID	504	
	Title 2 Time Channel ID		Title 6 Time Channel ID		Title 10 Time Channel ID
	Title 3 Time Channel ID		Title 7 Time Channel ID		Title 11 Time Channel ID
	Title 4 Time Channel ID		Title 8 Time Channel ID		Title 12 Time Channel ID
A D V E R T I S E M E N T					

506

Add Module to My Guide

Delete Module from My Guide

Replace Module in My Guide

Close Overlay

508

FIG. 5

**600**

Provider ID Date/Time	My Guide Additional Information about				
My Guide	Listings	On Demand	602		
On Now		On Next			
	Title 1 Time Channel ID		Title 5 Time Channel ID	604	
	Title 2 Time Channel ID		Title 6 Time Channel ID		Title 10 Time Channel ID
	Title 3 Time Channel ID		Title 7 Time Channel ID		Title 11 Time Channel ID
	Title 4 Time Channel ID		Title 8 Time Channel ID		Title 12 Time Channel ID
A D V E R T I S E M E N T					

Search for Media Module by:

Theme

Genre

Source

Word/Text/Character

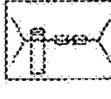
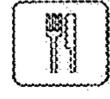
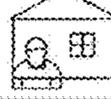
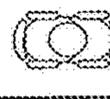
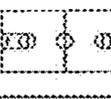
Recommendations

Close Overlay

604

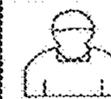
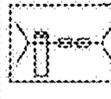
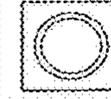
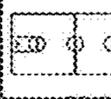
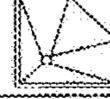
FIG. 6

**700**

<b>Provider ID</b> Date/Time	<b>My Guide</b> Additional Information about user selection			
<b>Recs. based on profile</b>		<b>Friendly recs.</b>	<b>TV Guide Recs.</b>	
<b>Friend 1 Recommendation</b>		<b>Mood 1 Recommendation</b>		<b>Theme 1 Recommendation</b>
 Title 1 Time Channel ID	 Title 5 Time Channel ID	 Title 9 Time Channel ID		
 Title 2 Time Channel ID	 Title 6 Time Channel ID	 Title 10 Time Channel ID		
 Title 3 Time Channel ID	 Title 7 Time Channel ID	 Title 11 Time Channel ID		
 Title 4 Time Channel ID	 Title 8 Time Channel ID	 Title 12 Time Channel ID		
<b>A D V E R T I S E M E N T</b>				

**FIG. 7**

**800**

<b>Provider ID</b> Date/Time	<b>My Guide</b> Additional Information about user selection			<b>User Recommendations:</b> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Friend 1</div> Friend 2 Friend 3 <b>System Recommendations:</b> Mood 1 Mood 2 Mood 3 Theme 1	
<b>My Guide</b>	<b>Listings</b>	<b>On Demand</b>	<b>DVR</b>		
<b>On Now</b>		<b>On Next</b>			
 Title 1 Time Channel ID	 Title 5 Time Channel ID				
 Title 2 Time Channel ID	 Title 6 Time Channel ID				
 Title 3 Time Channel ID	 Title 7 Time Channel ID	 Title 11 Time Channel ID			
 Title 4 Time Channel ID	 Title 8 Time Channel ID	 Title 12 Time Channel ID			
<b>A D V E R T I S E M E N T</b>					

**FIG. 8**

902

900

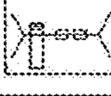
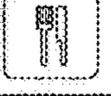
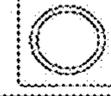
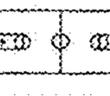
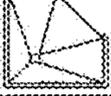
Provider ID Date/Time	My Guide Additional Information about user selection				
My Guide	Listings	On Demand	DVR	Search	
Friend 1 Recommendation		On Next		Hot List	
	Title 1 Time Channel ID		Title 5 Time Channel ID		Title 9 Time Channel ID
	Title 2 Time Channel ID		Title 6 Time Channel ID		Title 10 Time Channel ID
	Title 3 Time Channel ID		Title 7 Time Channel ID		Title 11 Time Channel ID
	Title 4 Time Channel ID		Title 8 Time Channel ID		Title 12 Time Channel ID
A D V E R T I S E M E N T					

FIG. 9

1002

1000

1018

Logo of Provider   Advertisement

Home | Join the Discussion | My Favorites | **My Guide** | My Friends

1004

On Now

Time < >

 Listing 1 ^

 Listing 2

 Listing 3

 Listing 4 v

1006

On Next

Listing 1 ^

Listing 2

Listing 3

Listing 4 v

1008

Hot List

Recommendation 1 ^

Recommendation 2

Recommendation 3

Recommendation 4 v

1010

Available Media by Type

Media Listing 1 ^

Media Listing 2 v

1012

Available Media by Source

Listing 1 ^

Listing 2 v

1014

Available Media by Genre

Listing 1 ^

Listing 2 v

1016

Available Media by Mood

Listing 1 ^

Listing 2 v

1020

Message Board

Friend 1: Hi

User: Hi, how are you?

FIG. 10

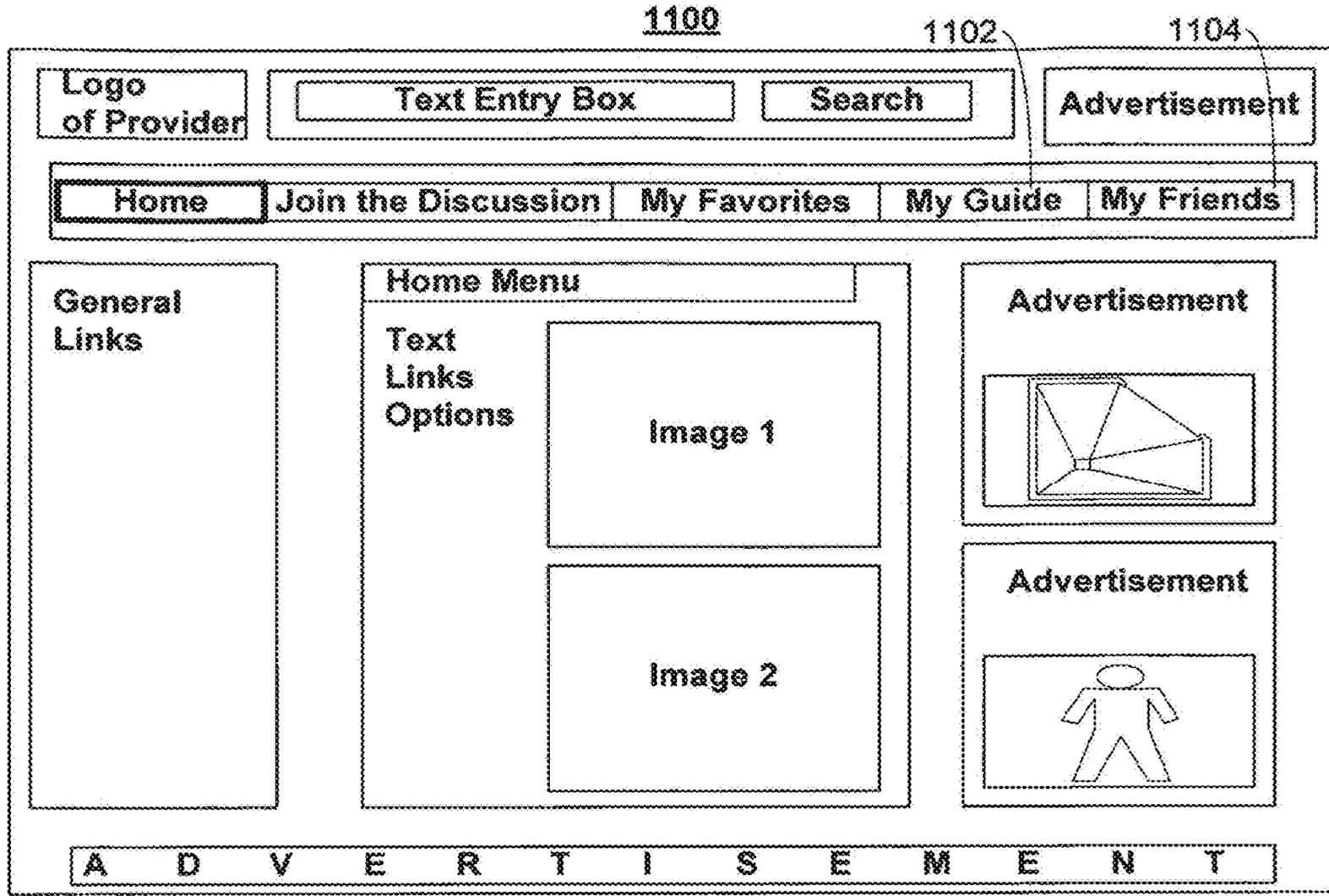


FIG. 11  
1200

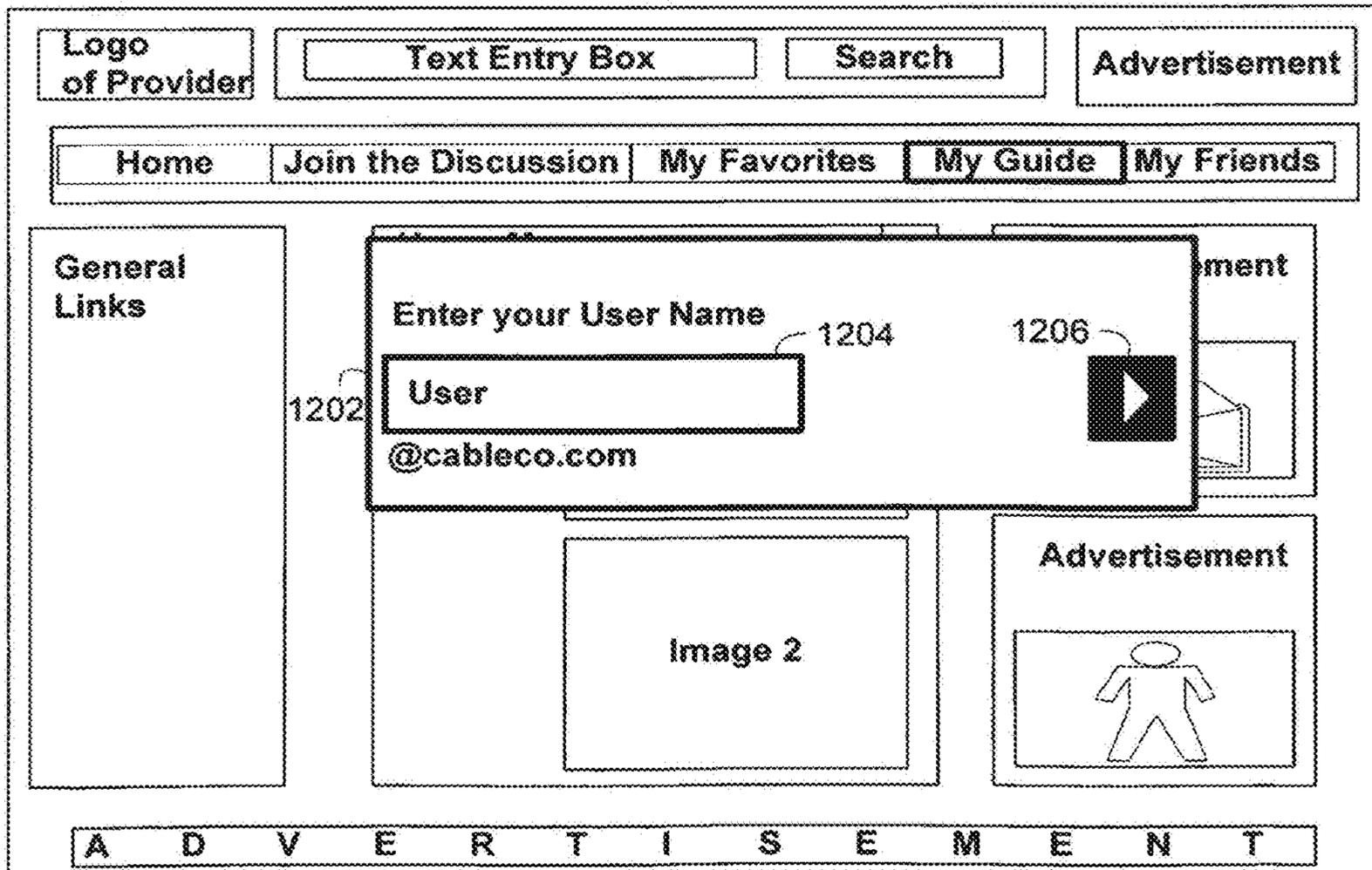


FIG. 12

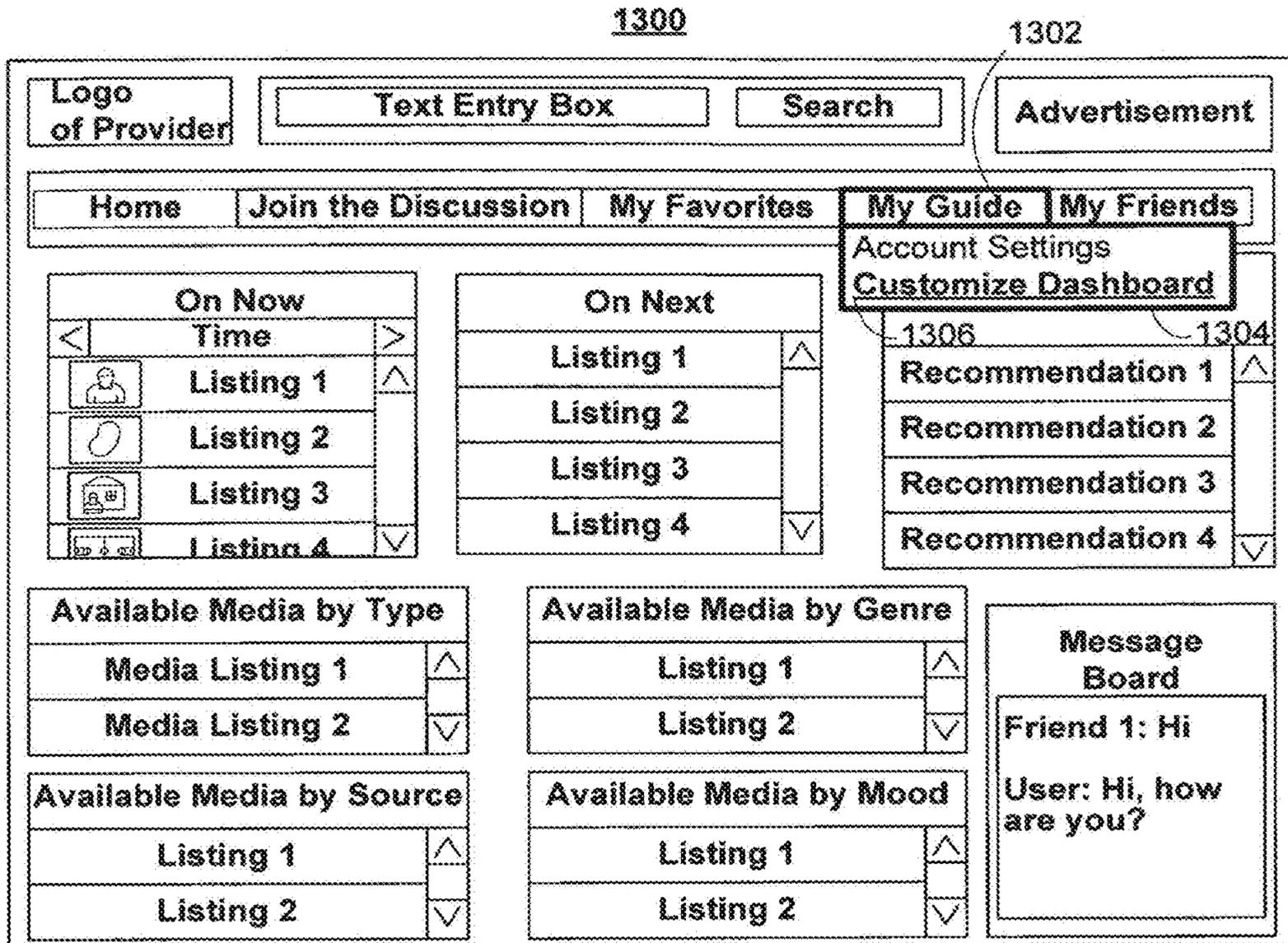


FIG. 13

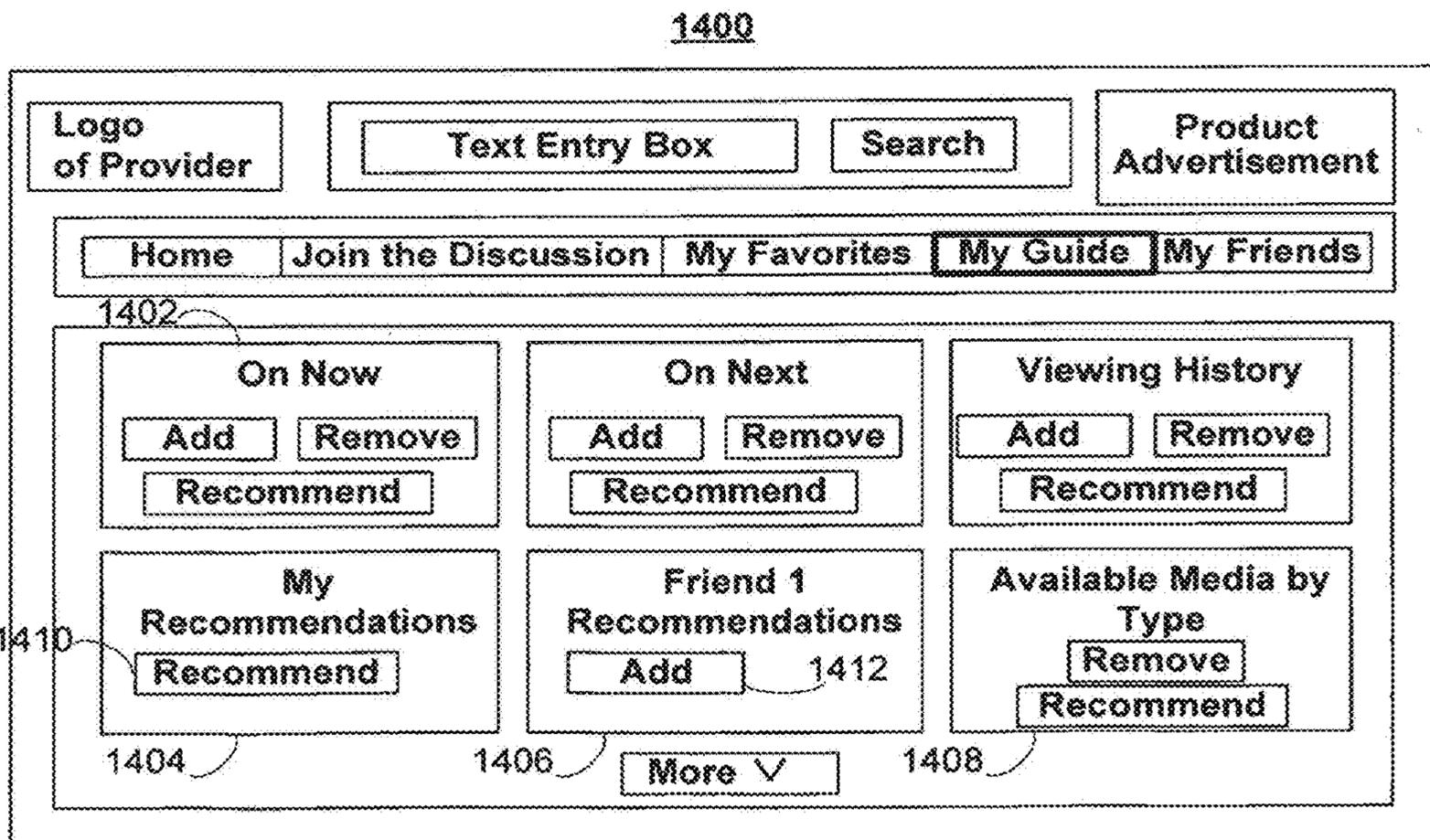


FIG. 14

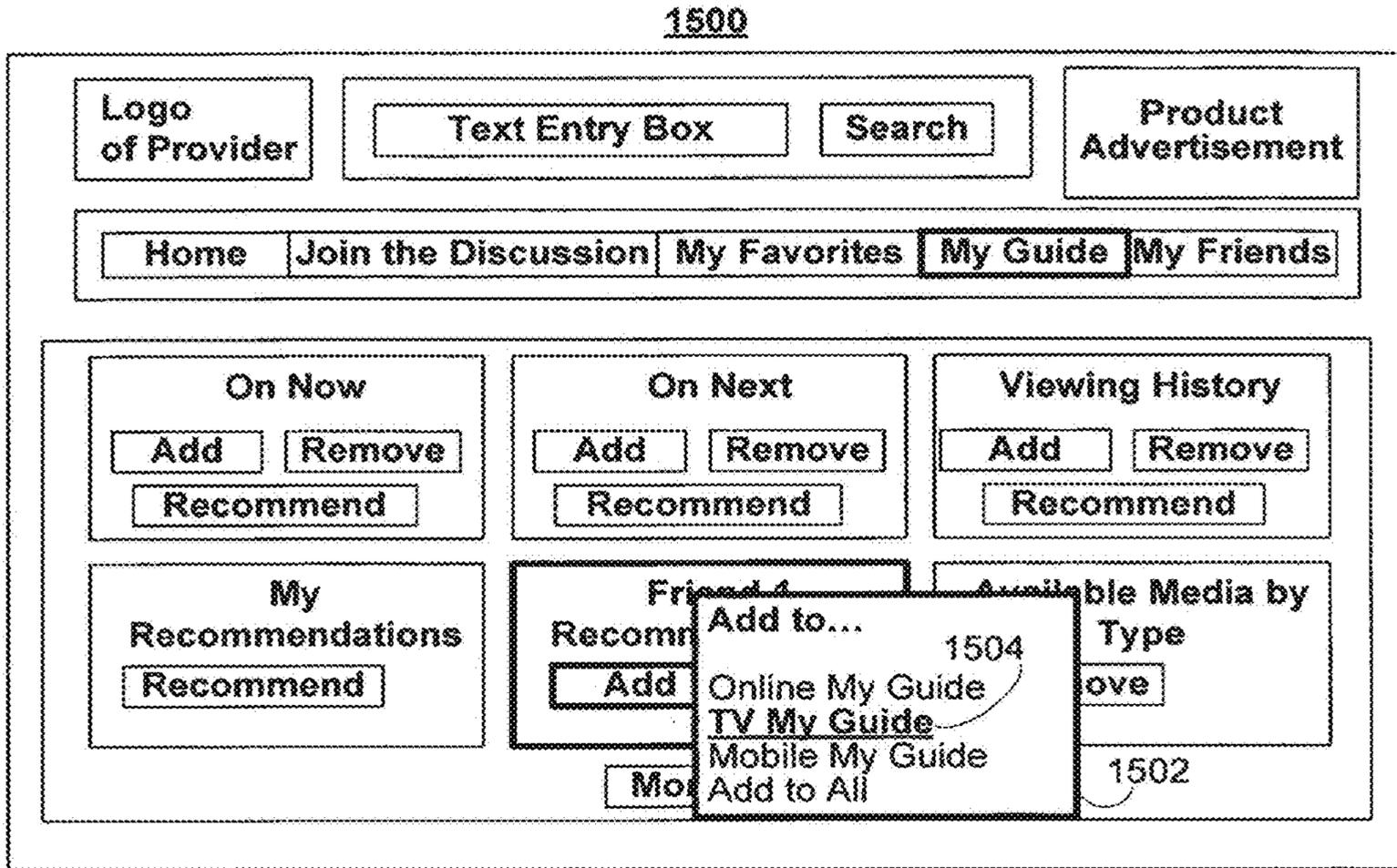


FIG. 15

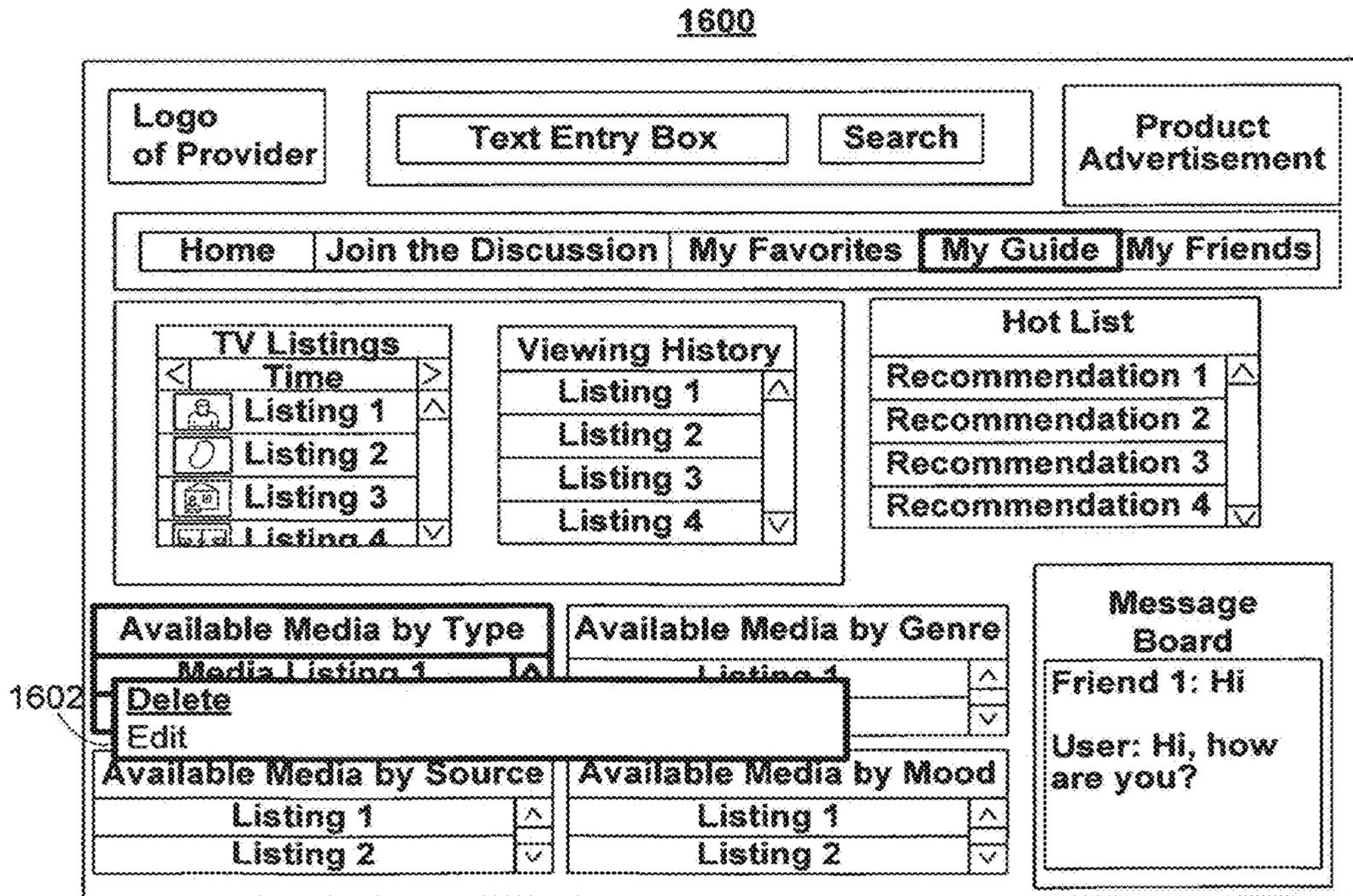


FIG. 16

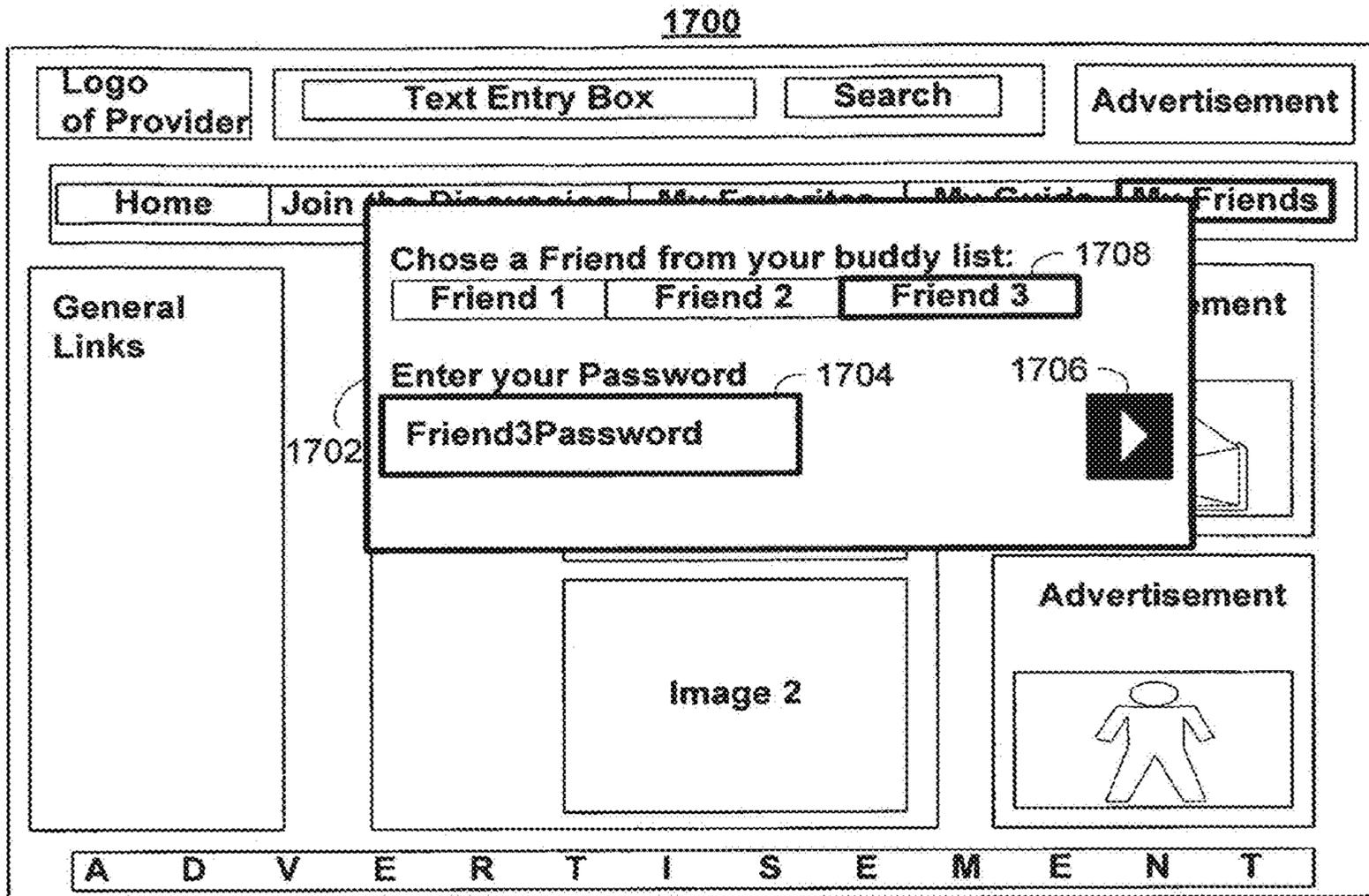


FIG. 17

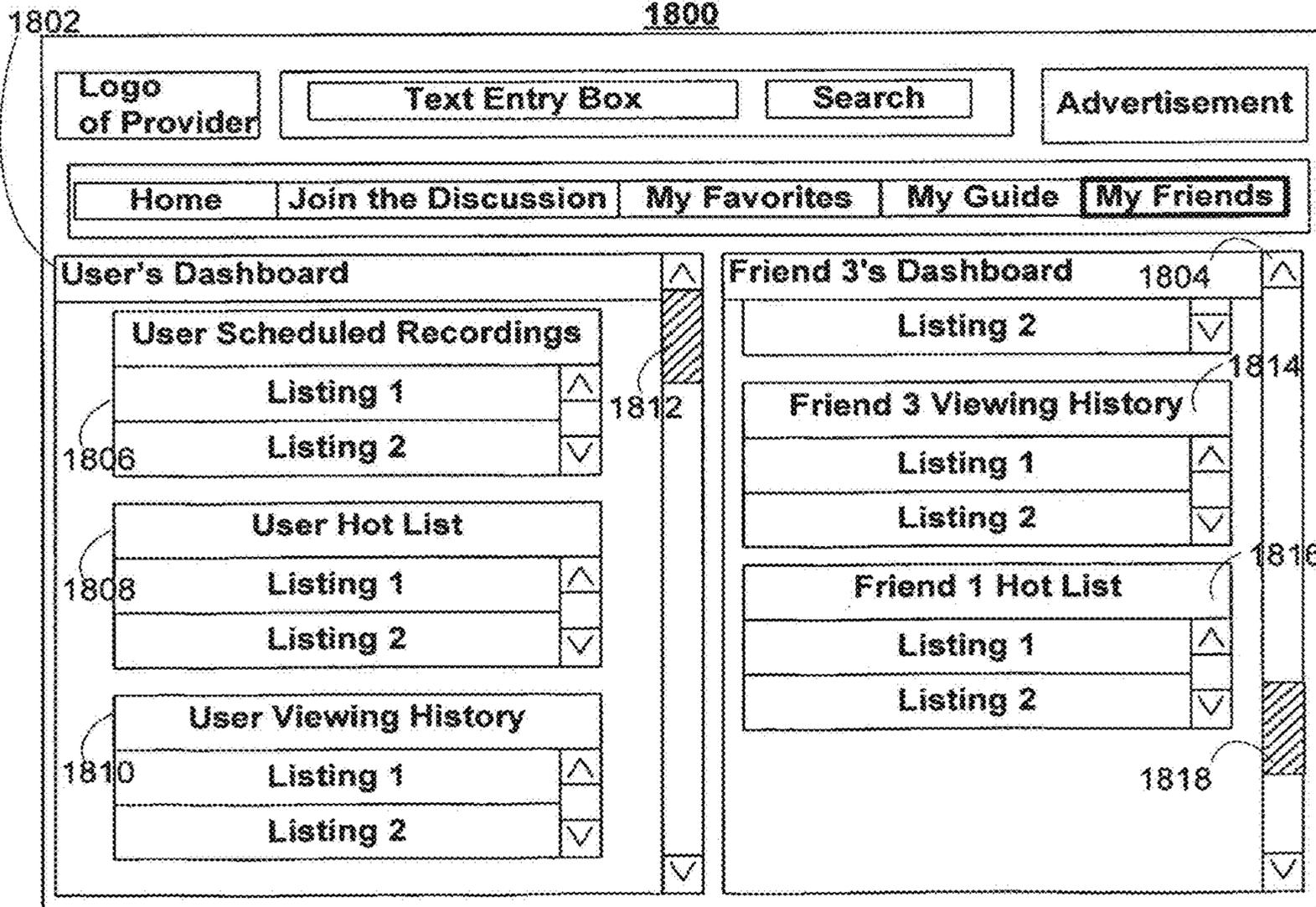


FIG. 18

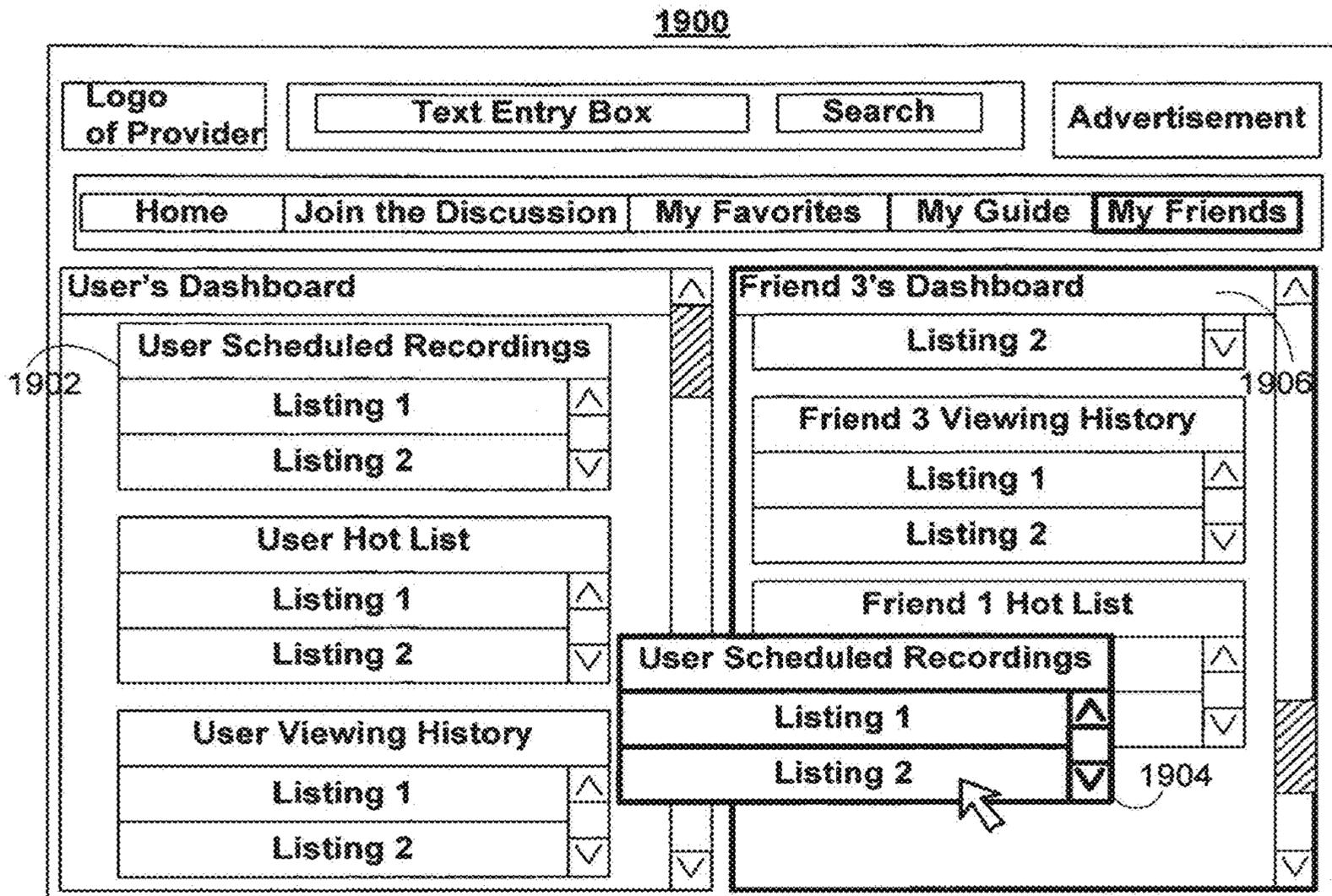


FIG. 19A

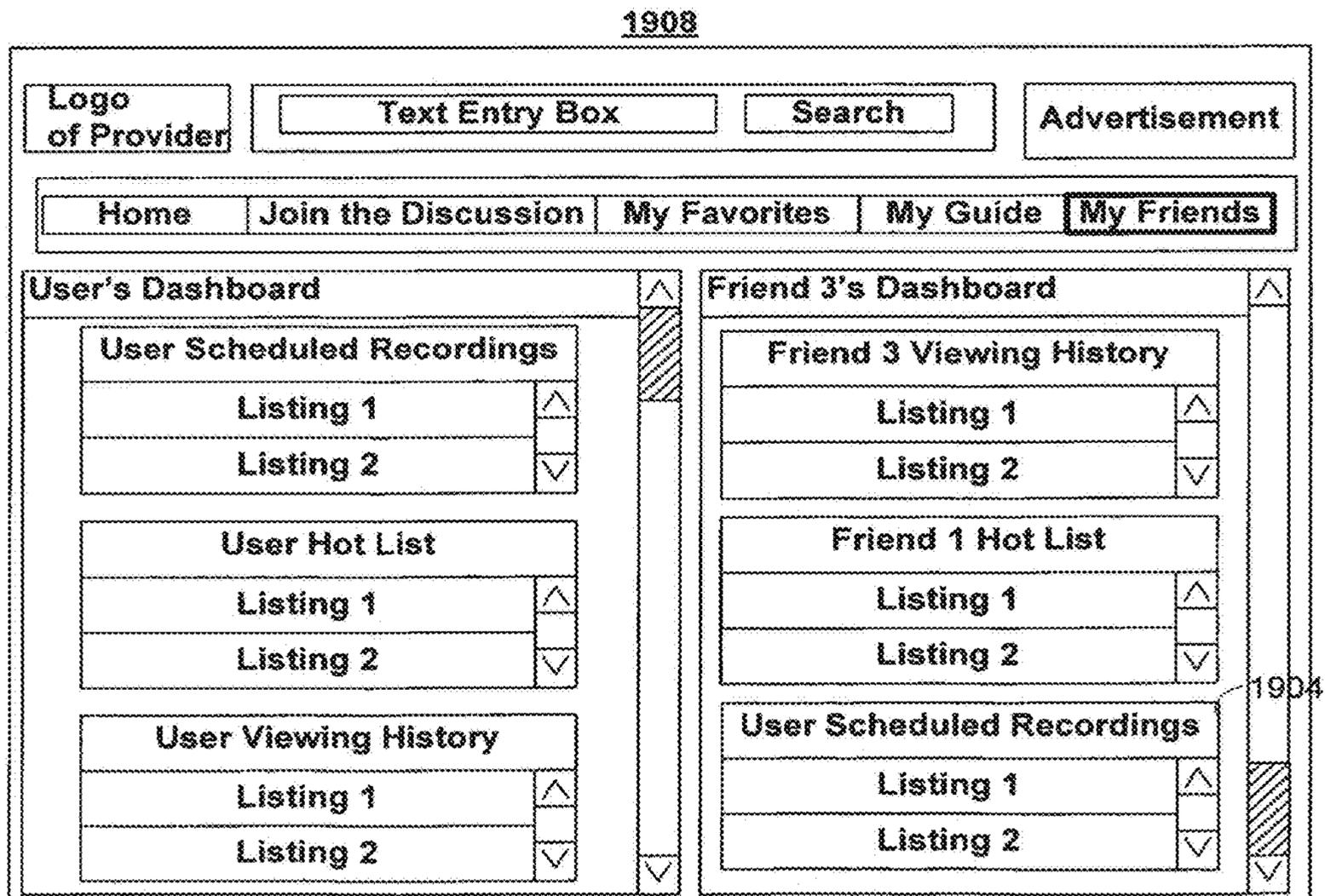


FIG. 19B

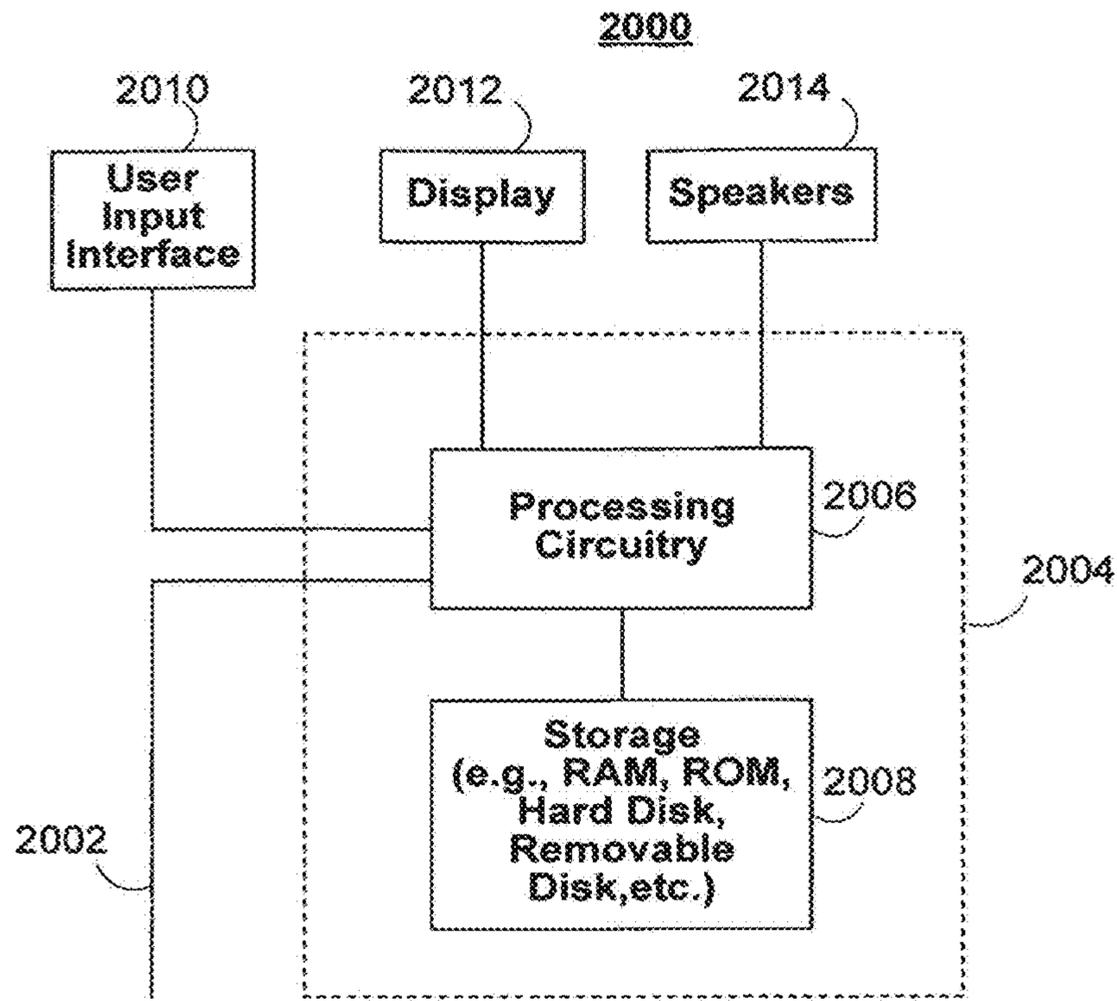


FIG. 20

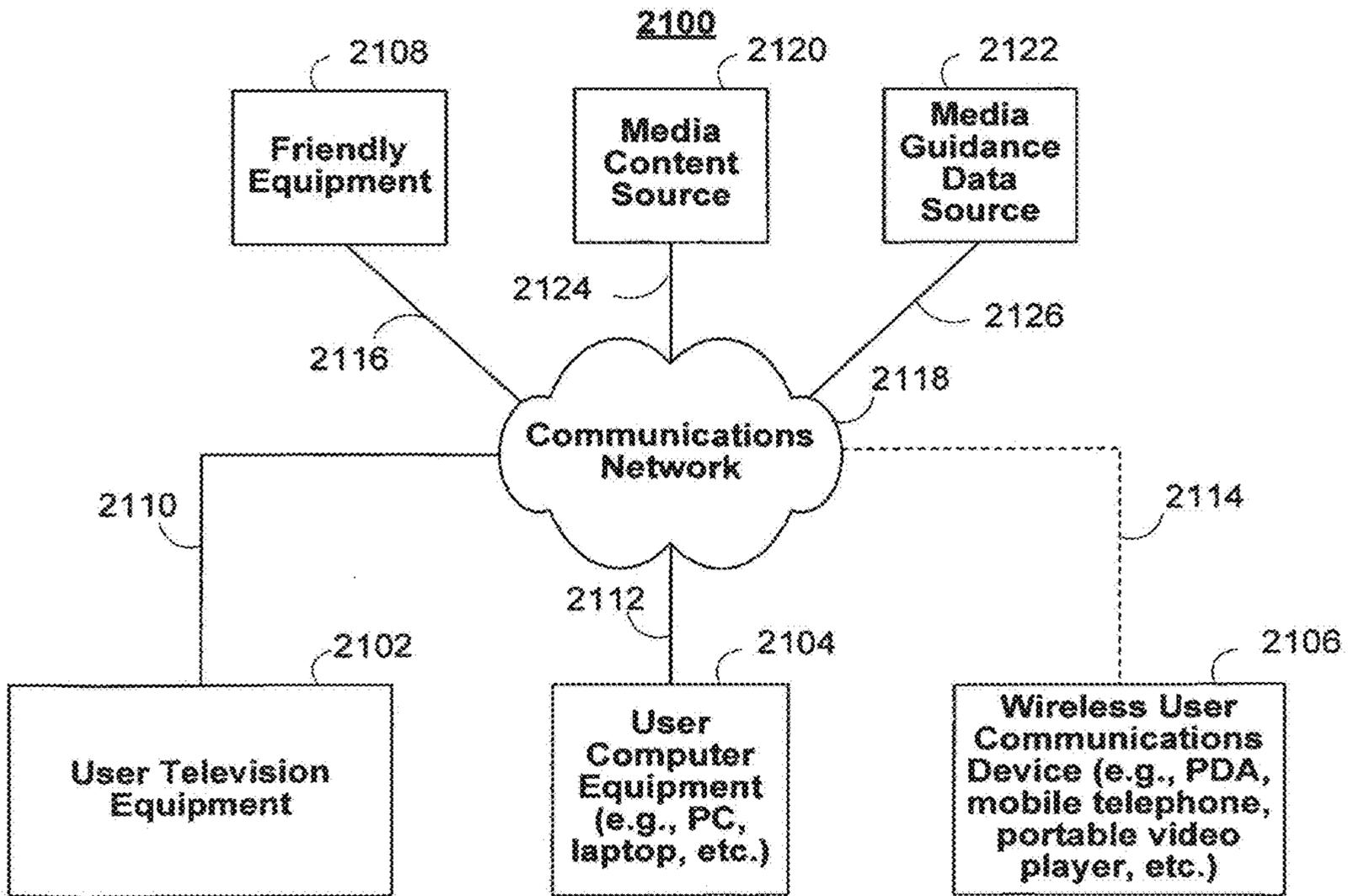


FIG. 21

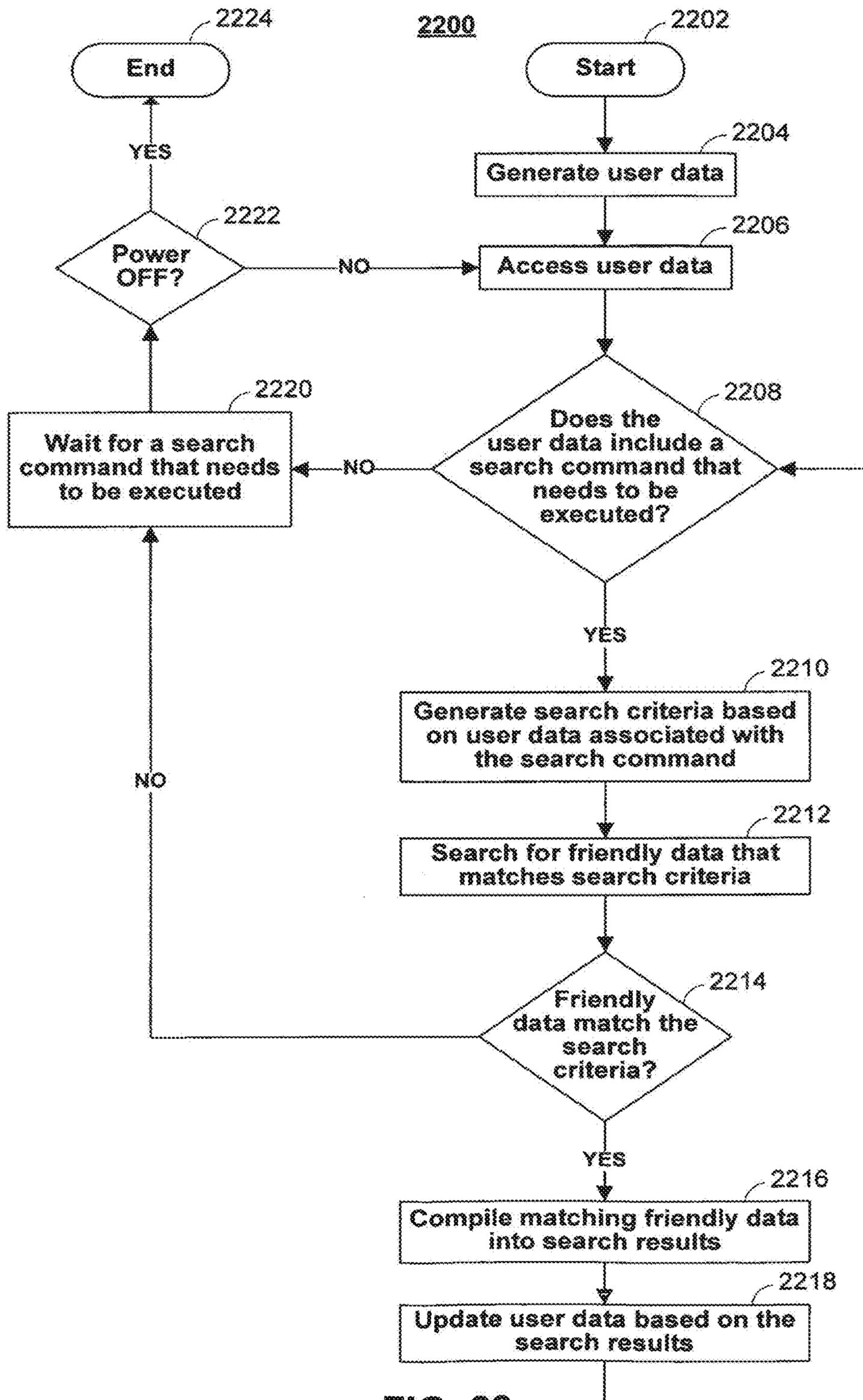


FIG. 22

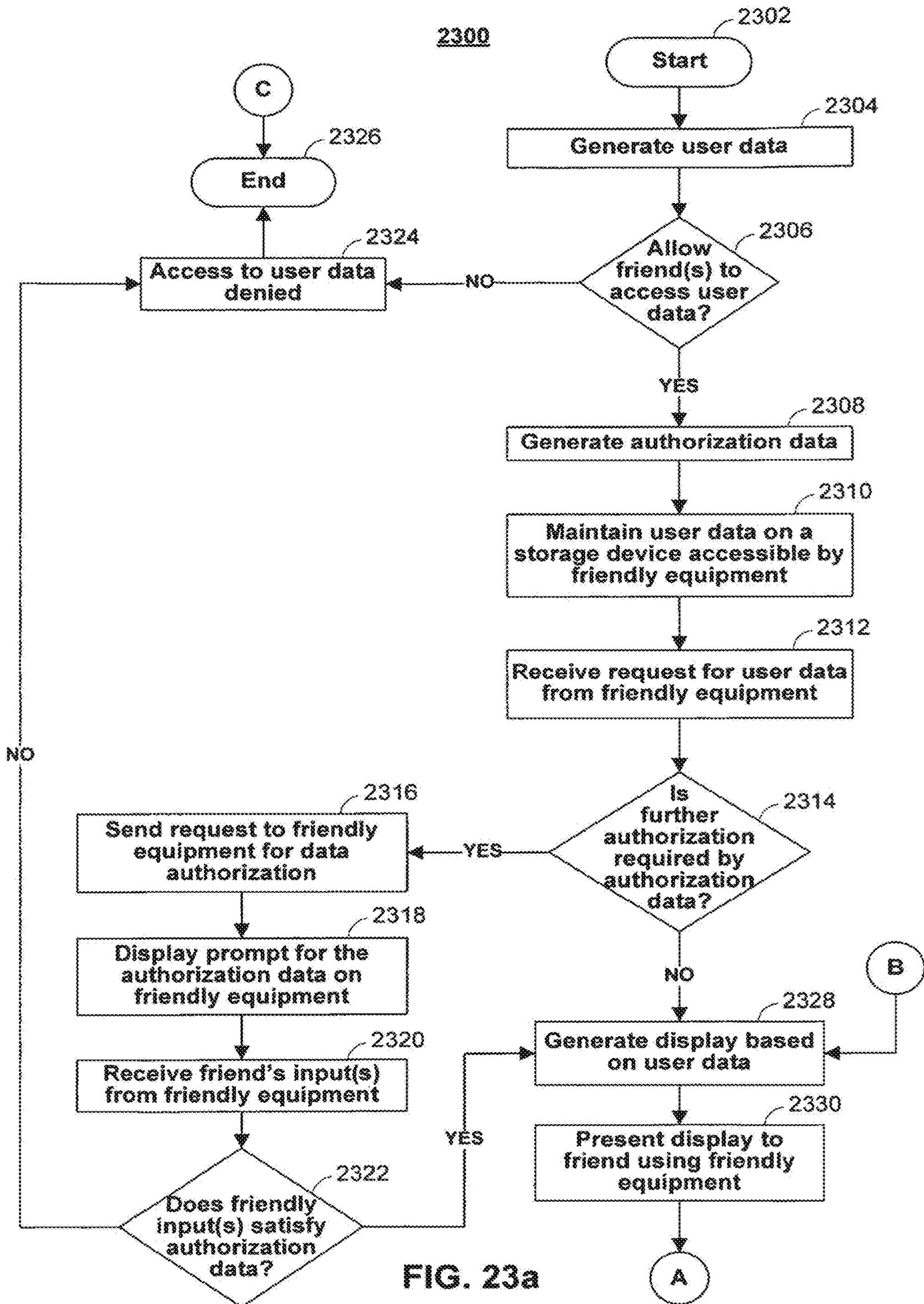


FIG. 23a

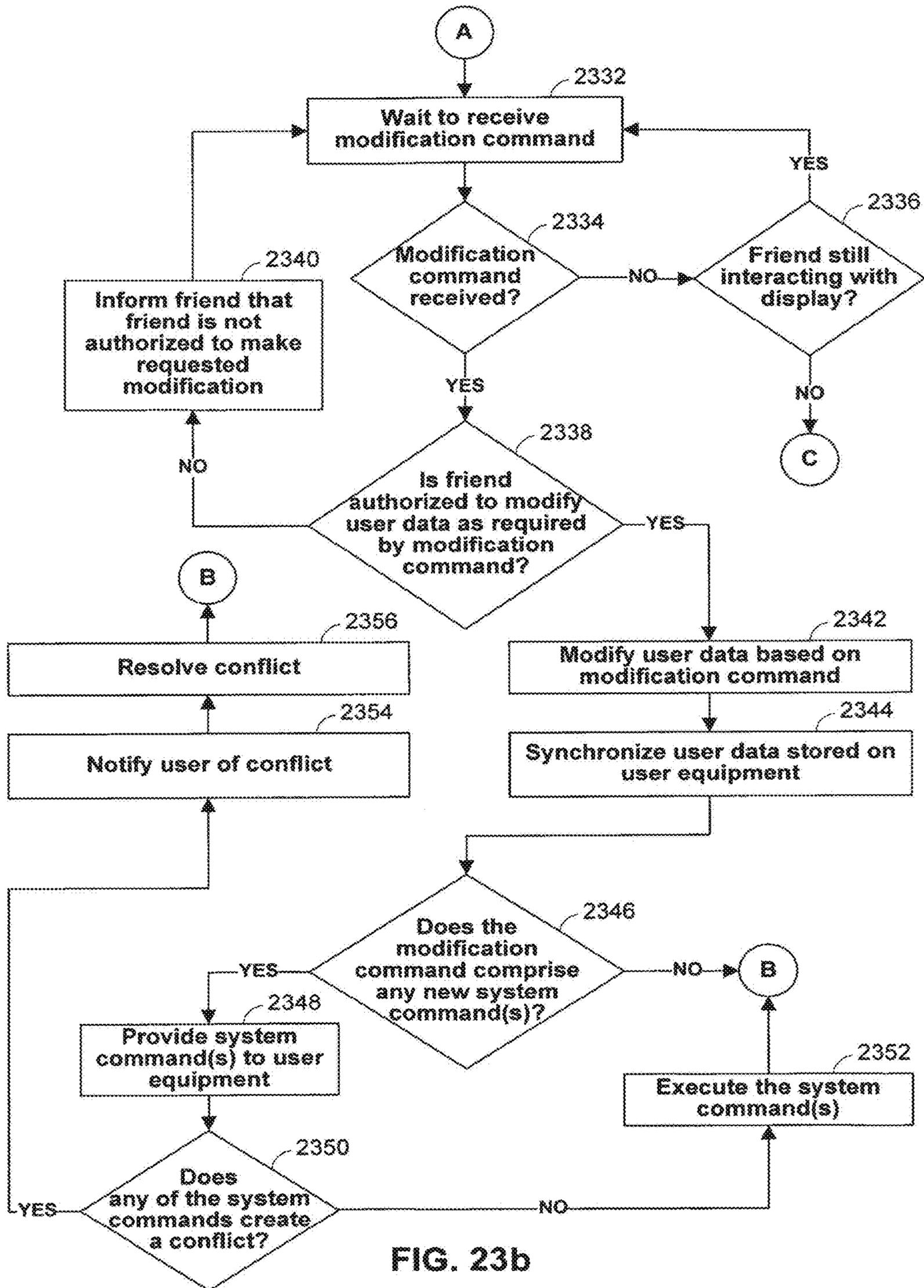


FIG. 23b

## MAINTAINING A USER PROFILE BASED ON DYNAMIC DATA

### CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. patent application Ser. No. 16/358,420, filed Mar. 19, 2019, which is a continuation of U.S. patent application Ser. No. 14/667,049, filed Mar. 24, 2015, now U.S. Pat. No. 10,284,914, which is a continuation of U.S. patent application Ser. No. 14/248,216, filed Apr. 8, 2014 (now abandoned), which is a continuation of U.S. patent application Ser. No. 11/986,463, filed Nov. 21, 2007, now U.S. Pat. No. 8,943,539, each of which is hereby incorporated by reference herein in their entireties entirety.

### BACKGROUND OF THE INVENTION

Media delivery systems provide a substantial amount of media to users. Consequently, many users desire a form of media guidance through an interface that allows users to efficiently navigate among media selections, as well as local and remote devices, and to easily identify media that they may desire. An application which provides such guidance is referred to herein as an interactive media guidance application or, sometimes, a media guidance application or a guidance application.

Interactive media guidance applications may take various forms and be implemented on various devices depending on the media for which they provide guidance. One typical type of media guidance application implemented on user television equipment is an interactive television program guide. Interactive television program guides (sometimes referred to as electronic program guides) are well-known guidance applications that, among other things, allow users to navigate among and locate many types of media content including conventional television programming (provided via a television network), as well as pay-per-view programs, on-demand programs (as in video-on-demand (VOD) systems), Internet content (e.g., streaming media, downloadable media, Webcasts, etc.), and other types of media or video content. Guidance applications also allow users to navigate among and locate content related to the video content including, for example, video clips, articles, advertisements, chat sessions, games, etc.

With the advent of the Internet, mobile computing, and high-speed wireless networks, users are accessing media on personal computers (PCs) and other devices on which they traditionally did not, such as hand-held computers, personal digital assistants (PDAs), mobile telephones, or other mobile devices. On these devices users are able to navigate among and locate the media that has traditionally only been available through a television. Consequently, media guidance is necessary on these devices as well. The guidance provided may be for media content available only through a television, for media content available only through one or more of these devices, or for media content available both through a television and one or more of these devices. The media guidance applications may be provided as on-line applications (i.e., provided on a web-site), or as stand-alone applications or clients on hand-held computers, PDAs, mobile telephones, or other mobile devices. The various devices and platforms that may implement media guidance applications are described in more detail below.

In addition to allowing people greater access to media, recent technological advances have also made it easier for

people to locate and communicate with other people that have similar interests. For example, social networking websites, such as MYSPACE™ and FRIENDSTER™, allow users to create a user-defined website that can act as a catalyst for meeting new people or staying in touch with old friends. (MYSPACE™ and FRIENDSTER™ are trademarks respectively owned by MySpace, Inc. and Friendster, Inc.) These social networking tools, however, are largely dependent on the information the user enters directly into them and are not, for example, integrated with other user profiles or user equipment, such as user television equipment.

Systems and methods for generating, maintaining and utilizing other types of user profiles, such as user profiles associated with television programming and other types of media, are discussed in, for example, commonly-assigned U.S. Pat. No. 7,185,355, issued Feb. 27, 2007, U.S. Patent Publication No. 2002/0174430, published Nov. 21, 2002, and U.S. Patent Publication No. 2005/0160458, published Jul. 21, 2005, which are each incorporated by reference herein in its entirety. In addition, commonly-assigned U.S. Patent Publication No. 2007/0157242, published Jul. 5, 2007 and U.S. patent application Ser. No. 11/809,341, filed May 31, 2007, which are each incorporated by reference herein in its entirety, discuss associating the viewing history and recording-related actions with a user profile that can be shared and/or implemented among a plurality of user equipment devices. However, there still exists a need for systems and methods that search for and display user profile information to other users based on, for example, viewing history or recording-related actions associated with a user profile. There is also a need for systems and methods that allow a user to access a particular user profile and provide and/or receive programming recommendations based on and to that user profile.

### SUMMARY OF THE INVENTION

In accordance with the principles of the present invention, user equipment, friendly equipment and a central server can be combined to create an interactive media guidance system. Various applications can be implemented on the user equipment, friendly equipment and central server. The user equipment, friendly equipment and central server may also comprise and/or have direct access to one or more digital storage devices, as well as remote access to each other's storage devices. The storage devices may be used to store, among other things, media data that may be associated with the user or a friend. Data associated with the user is sometimes referred to herein as user data and data associated with a friend is sometimes referred to herein as friendly data.

The media guidance application implemented on user equipment (sometimes referred to herein as the user media guidance application) can be configured to, for example, generate and automatically maintain user data. The user data may be subdivided into different types of data and stored as separate files. For example, user data may include user profile data, authorization data, system data, scheduling data, media data, calendar data, account data, etc. Various commands may be embedded or, more generally, associated with the user data. For example, the user data may include data generated in response to and/or representing one or more system commands. System commands are groups of data that instruct one or more components of the user equipment, friendly equipment and/or server equipment to perform some sort of task. Some of examples of system commands include a recording command, a series recording

command, a reminder command, a delete command, a user recommendation command, an order command (for, e.g., Pay-Per-View or On-Demand programming), a display command, etc.

Similarly, a media guidance application may be implemented on friendly equipment. Such media guidance applications are sometimes referred to herein as friendly guidance applications. The friendly media guidance application and friendly equipment may function the same as or similar to the user media guidance application and user equipment. The only difference between the user media guidance application and equipment and the friendly media guidance application and equipment is that a friend, not the user, uses the friendly media guidance application and equipment.

User equipment and friendly equipment may communicate directly using various communications paths and communication protocols. In some embodiments, user equipment and friendly equipment may communicate indirectly through a central server. Both user and friendly equipment may be used to generate system commands that can be executed by the other type of equipment. System commands can be generated in response to receiving a user or friendly input or modification command. A modification command is an electronic command that causes user or friendly data to be modified.

A modification command, search command and any other command discussed herein may be conditioned on dynamic data. Dynamic data, such as data related to a user's or friend's viewing history, can automatically change over time. A user may, for example, condition media associated with the user's personal dashboard on dynamic data. For example, the user's profile may include all non-offensive media that a friend recommends. If, however, the friend's media recommendations become dangerous (e.g., include illegal web content) or inappropriate for children, the user media guidance application may automatically place the friend on a block list and/or delete the association of the friend's recommendations with the user's profile. As another example, the user's profile may be configured to include modules related to sports in general and, as the sports seasons change, the types of modules associated with the user's profile may also change.

The central server can be used, for example, to facilitate the transfer of data between user equipment and friendly equipment. User and friendly equipment may upload all user and friendly data to the server, or a subset thereof. The server may store all user and friendly profile data that the server receives. Before the server facilitates the transfer of information, the server may require that it receives authorization data from the user equipment and/or friendly equipment. In this manner, the server may also act as a gatekeeper and restrict the transfer of data.

The user equipment and friendly equipment may include a display screen and processor. The processor may generate and display information based on user data and/or friendly data. In some embodiments, user information and friendly information can be displayed simultaneously. The information may be displayed as lists, modules, etc. and be grouped/ordered in any number of ways (e.g., by theme, mood, user/friend-defined criteria, etc.). In addition, the user equipment may allow the user to modify friendly data, just as the friendly equipment may allow a friend to modify user data. These modifications may include the addition of friendly data to user data and vice-versa.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The above and other features of the present invention, its nature and various advantages will be more apparent upon

consideration of the following detailed description of the disclosure, taken in conjunction with the accompanying drawings, in which like reference numerals refer to like parts throughout, and in which:

FIGS. 1-2 show illustrative grid program listings display screens in accordance with various embodiments of the present invention;

FIG. 3 shows an illustrative video mosaic program listings display screen in accordance with one embodiment of the present invention;

FIG. 4 shows an illustrative grid program listings display screen in accordance with one embodiment of the present invention;

FIGS. 5-18, 19A, and 19B show illustrative media application display screens used in accordance with various embodiments of the present invention;

FIG. 20 shows a generalized embodiment of an illustrative user or friendly equipment device in accordance with one embodiment of the present invention;

FIG. 21 shows a generalized embodiment of an illustrative interactive media guidance system in accordance with one embodiment of the present invention; and

FIGS. 22, 23A, and 23B are flow diagrams of illustrative processes that can be used in accordance with various embodiments of the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The media guidance application of the present invention may use application data to change its display screens and available options. Such application data may originate from computers located at one or more suitable facilities or locations (which are discussed below, for example, in connection with FIGS. 21-22). The following is a description of various media guidance application display screens, options, configurations and methods related to features in accordance with various embodiments of the present invention.

One of the functions of the media guidance application is to provide media listings and media information to users. FIGS. 1-19 show illustrative display screens that may be used to provide media guidance by, for example, presenting media listings and other selectable display components. The display screens shown in FIGS. 1-19 may be implemented on any suitable device or platform. While the displays of FIGS. 1-19 are illustrated as full screen displays, they may also be fully or partially overlaid over media content or other display screens being displayed. A user may indicate a desire to access media information by selecting a selectable option provided in a display screen (e.g., a menu option, a listings option, an icon, a hyperlink, etc.) or pressing a dedicated button (e.g., a GUIDE button) on a remote control or other user input interface or device. In response to the user's indication, the media guidance application may provide the appropriate display screen with media information organized in one of several ways, such as by time and channel in a grid, by time, by channel, by media type, by category (e.g., movies, sports, news, children, or other categories of programming), or other predefined, user-defined, or other organization criteria.

Display 100 of FIG. 1 is an illustrative grid program listings display arranged by time and channel that also enables access to different types of media content in a single display. Display 100 may include grid 102 with: (1) a column of channel/media type identifiers 104, where each channel/media type identifier (which is a cell in the column) identifies a different channel or media type available; and (2)

a row of time identifiers **106**, where each time identifier (which is a cell in the row) identifies a time block of programming. Grid **102** also includes cells of program listings, such as program listing **108**, where each listing provides the title of the program provided on the listing's associated channel and time. With a user input device, a user can select program listings by moving highlight region **110**. Additional information relating to the program listing selected by highlight region **110** may be provided in program information region **112**. Region **112** may include, for example, the program title, the program description, the time the program is provided (if applicable), the channel the program is on (if applicable), the program's rating, and other desired information.

In addition to providing access to linear programming provided according to a schedule, the media guidance application also provides access to non-linear programming which is not provided according to a schedule. Non-linear programming may include content from different media sources including on-demand media content (e.g., VOD), Internet content (e.g., streaming media, downloadable media, etc.), locally stored media content (e.g., video content stored on a digital video recorder (DVR), digital video disc (DVD), video cassette, compact disc (CD), etc.), or other time-insensitive media content. On-demand content may include both movies and original media content provided by a particular media provider (e.g., HBO ON DEMAND™ providing THE SOPRANOS™ and CURB YOUR ENTHUSIASM™). HBO ON DEMAND™ is a service mark owned by Time Warner Company L.P. et al. and THE SOPRANOS™ and CURB YOUR ENTHUSIASM™ are trademarks owned by the Home Box Office, Inc. Internet content may include web events, such as a chat session or Webcast, or content available on-demand as streaming media or downloadable media through an Internet web site or other Internet access (e.g., FTP).

Grid **102** may provide listings for non-linear programming including on-demand listing **114**, recorded media listing **116**, and Internet content listing **118**. A display combining listings for content from different types of media sources is sometimes referred to as a "mixed-media" display. The various permutations of the types of listings that may be displayed that are different than display **100** may be based on user selection or guidance application definition (e.g., a display of only recorded and broadcast listings, only on-demand and broadcast listings, etc.). As illustrated, listings **114**, **116**, and **118** are shown as spanning the entire time block displayed in grid **102** to indicate that selection of these listings may provide access to a display dedicated to on-demand listings, recorded listings, or Internet listings, respectively. In other embodiments, listings for these media types may be included directly in grid **102**. Additional listings may be displayed in response to the user selecting one of the navigational icons **120**. (Pressing an arrow key on a user input device may affect the display in a similar manner as selecting navigational icons **120**.)

Display **100** may also include video region **122**, advertisement **124**, and options region **126**. Video region **122** may allow the user to view and/or preview programs that are currently available, will be available, or were available to the user. The content of video region **122** may correspond to, or be independent from, one of the listings displayed in grid **102**. Grid displays including a video region are sometimes referred to as picture-in-guide (PIG) displays. PIG displays and their functionalities are described in greater detail in Satterfield et al. U.S. Pat. No. 6,564,378, issued May 13, 2003 and Yuen et al. U.S. Pat. No. 6,239,794, issued May 29,

2001, which are hereby incorporated by reference herein in their entireties. PIG displays may be included in other media guidance application display screens of the present invention.

Advertisement **124** may provide an advertisement for media content that, depending on a viewer's access rights (e.g., for subscription programming), is currently available for viewing, will be available for viewing in the future, or may never become available for viewing, and may correspond to or be unrelated to one or more of the media listings in grid **102**. Advertisement **124** may also be for products or services related or unrelated to the media content displayed in grid **102**. Advertisement **124** may be selectable and provide further information about media content, provide information about a product or a service, enable purchasing of media content, a product, or a service, provide media content relating to the advertisement, etc. Advertisement **124** may be targeted based on any type of use-related data (sometimes referred to herein as "user data"), such as, e.g., a user's profile/preferences, monitored user activity, the type of display provided, or on other suitable targeted advertisement bases.

While advertisement **124** is shown as rectangular or banner shaped, advertisements may be provided in any suitable size, shape, and location in a guidance application display. For example, advertisement **124** may be provided as a rectangular shape that is horizontally adjacent to grid **102**. This is sometimes referred to as a panel advertisement. In addition, advertisements may be overlaid over media content or a guidance application display or embedded within a display. Advertisements may also include text, images, rotating images, video clips, or other types of media content. Advertisements may be stored in the user equipment with the guidance application, in a database connected to the user equipment, in a remote location (including streaming media servers), or on other storage means or a combination of these locations. Providing advertisements in a media guidance application is discussed in greater detail in, for example, Knudson et al., U.S. patent application Ser. No. 10/347,673, filed Jan. 17, 2003, Ward, III et al. U.S. Pat. No. 6,756,997, issued Jun. 29, 2004, and Schein et al. U.S. Pat. No. 6,388,714, issued May 14, 2002, which are hereby incorporated by reference herein in their entireties. It will be appreciated that advertisements may be included in other media guidance application display screens of the present invention.

Options region **126** may allow the user to access different types of media content, media guidance application displays, and/or media guidance application features. Options region **126** may be part of display **100** (and other display screens of the present invention), or may be invoked by a user by selecting an on-screen option or pressing a dedicated or assignable button on a user input device. The selectable options within options region **126** may concern features related to program listings in grid **102** or may include options available from a main menu display. Features related to program listings may include searching for other air times or ways of receiving a program, recording a program, enabling series recording of a program, setting program and/or channel as a favorite, purchasing a program, or other features. Options available from a main menu display may include search options, VOD options, parental control options, access to various types of listing displays, subscribe to a premium service, edit a user's profile, access a browse overlay, or other options.

Display **200** of FIG. **2** is another illustrative grid program listings display arranged by time and channel. Display **200**

may include some components and interface features that are similar to or the same as those shown in display 100. In particular, display 200 is illustrated as including grid 202, channel/media type identifiers 204, and time identifiers 206, which respectively correspond to grid 102, channel/media type identifiers 104, and time identifiers 106 discussed above. Grid 202 also includes cells of program listings, such as program listing 208, where each listing provides the title of the program provided on the listing's associated channel and time. A user input device can be used as described above to interact with display 200 (e.g., moving highlight region 210) or any other display discussed herein in the same manner discussed above. Additional information relating to the program listing selected by highlight region 210 may be provided in program information region 212.

Tab region 214 can be used to provide options that, when selected, allow the user to interact with various display screens. These display screens can include one or more customizable interactive user interfaces that deliver personalized media across multiple media platforms. For example, tabs region 214 can include one or more options that allow the user to access types of programming (such as, e.g., non-linear programming) that are not included in grid 202 and/or that are organized in a user-specific manner (as opposed to a traditional, system generated manner as shown in display 200). For example, in response to On Demand option 216 being selected, the media guidance application may present a listings grid or other type of display associated with On Demand programming and/or configuration settings. In some embodiments, grid 202 may also include listings for non-linear programming (not shown) and cause display 200 to be a mixed-media display.

Display 200 may also include video region 218 and advertisement 220, which may be similar to or the same as video region 122 and advertisement 124, respectively discussed above.

Another display arrangement for providing media guidance is shown in FIG. 3. Video mosaic display 300 includes selectable options 302 for media content information organized based on media type, genre, and/or other organization criteria. In display 300, television listings option 304 is selected, thus providing listings 306, 308, 310 and 312 as broadcast program listings. Unlike the listings shown in the other figures discussed herein, the listings in display 300 are not limited to simple text (e.g., the program title) and icons to describe media. In display 300 the listings may provide graphical images including cover art, still images from the media content, video clip previews, live video from the media content, or other types of media that indicate to a user the media content being described by the listing. Each of the graphical listings may also be accompanied by text to provide further information about the media content associated with the listing. For example, listing 308 may include more than one portion, including media portion 314 and text portion 316. Media portion 314 and/or text portion 316 may be selectable to view video in full-screen or to view program listings related to the video displayed in media portion 314 (e.g., to view listings for the channel that the video is displayed on).

The listings in display 300 are of different relative sizes (i.e., listing 306 is shown as being larger than listings 308, 310, and 312), but if desired all the listings may be the same size as shown in, e.g., FIG. 4. Listings may be of different sizes or graphically accentuated to indicate degrees of interest to the user or to emphasize certain content, as desired by the media provider or based on user preferences. Various systems and methods for graphically accentuating

media listings are discussed in, for example, Yates, U.S. patent application Ser. No. 11/324,202, filed Dec. 29, 2005, which is hereby incorporated by reference herein in its entirety.

The media guidance application may be personalized based on a user's preferences. A personalized media guidance application allows a user to customize displays and features to create a personalized "experience" with the media guidance application. This personalized experience may be created by allowing a user to input these customizations and/or by the media guidance application monitoring user activity to determine various user preferences. Users may access their personalized guidance application by logging in or otherwise identifying themselves to the guidance application. Customization of the media guidance application may be made in accordance with a user profile. The customizations may include varying presentation schemes (e.g., color scheme of displays, font size of text, etc.), aspects of media content listings displayed (e.g., only HDTV programming, user-specified broadcast channels based on favorite channel selections, re-ordering the display of channels, recommended media content, etc.), desired recording features (e.g., recording or series recordings for particular users, recording quality, etc.), parental control settings, and other desired customizations.

The media guidance application may allow a user to provide user profile information (which can be processed into machine-readable data) or may automatically compile user profile data. The media guidance application may, for example, monitor the media the user accesses and/or other interactions the user may have with the guidance application. Additionally, the media guidance application may obtain all or part of other user profiles that are related to a particular user (e.g., from other web sites on the Internet the user accesses, such as www.tvguide.com, from other media guidance applications the user accesses, from other interactive applications the user accesses, from a handheld device of the user, etc.), and/or obtain information about the user from other sources that the media guidance application may access. As a result, a user can be provided with a unified guidance application experience across the user's different devices. Additional personalized media guidance application features are described in greater detail in Ellis et al., U.S. patent application Ser. No. 11/179,410, filed Jul. 11, 2005, Boyer et al., U.S. patent application Ser. No. 09/437,304, filed Nov. 9, 1999, and Ellis et al., U.S. patent application Ser. No. 10/105,128, filed Feb. 21, 2002, which are hereby incorporated by reference herein in their entireties.

FIG. 4 illustrates display 400, which is an example of a display that is personalized for a user. Display 400 is illustrated as a modular media guidance dashboard application display, sometimes referred to herein as a dashboard. Modular media guidance dashboard applications and application displays are discussed further in commonly assigned Shannon et al., U.S. patent application Ser. No. 11/541,299, filed Sep. 29, 2006, which is incorporated herein by reference in its entirety. Although display 400 includes tabs region 402, which is similar to or same as tabs region 214 of FIG. 2, one skilled in the art would appreciate that display 400 may be presented in response to, e.g., receiving a user selection of an option from any type of display (such as, e.g., one of selectable options 302 in display 300), logging in to the guidance application, etc.

Display 400 illustrates a customizable interactive user interface that includes On Now module 404, On Next module 406 and Hot List module 408. These particular modules may be included in display 400 for various reasons.

For example, a user profile may cause one or more of these modules to be included in display **400**. As another example, the user may have specifically selected one or more of the modules to be included in display **400**. As yet another example, another person, such as a friend of the user, may have associated one or more of the module's with display **400**.

As illustrated, each module is associated with media files, and each media file can have at least one corresponding media listing, which may be selected. A user can utilize a user input device to navigate highlight region **410** to surround and select any of the media listings. In response to a listing being selected, the media guidance application may generate a new display, which may include retrieving data and presenting media or information to a user, and/or performing any other command associated with the selected media listing (e.g., scheduling a program for recording, setting a reminder, associating a program with a favorites list or user profile, etc.).

On Now module **404**, On Next module **406** and Hot List module **408** are the only three modules included in display **400**. Additional or fewer modules may be included in display **406**, just like any other display of the present invention. In some embodiments, particular modules are automatically associated with particular displays by the media guidance application. In other embodiments, the user may configure how many and which modules can be included in any given display. For example, display **400** could be limited to only three modules and be configured to include one or more recommended modules. Such configurations, like all other user-specified settings are saved as user preference data, or more generally as a file of user data.

Display **500** of FIG. **5** illustrates an exemplary display that may be presented to the user in response to the media guidance application receiving a user indication to manually configure (or reconfigure) which the modules are included in, e.g., display **400**. Display **500** includes overlay **502**. Overlay **502** may include selectable options, such as, e.g., add module option **504**, delete module option **506**, and replace module option **508**. In some instances, the options included in overlay **502** can be module-specific and displayed in response to a portion of a module being selected (such as, e.g., an icon (not shown), the module header (i.e., the portion of the module that includes the module name), etc.). In other instances, overlay **502** can be generic and the media guidance application may ask the user to associate a module with a selected option after the option is selected. For example, in response to add module option **504** being selected, the interactive media guidance application may generate a display that allows the user to add a module to display **400**. As another example, in response to delete module option **506** being selected, the interactive media guidance application may generate a display that allows the user to delete the association of a module with display **400**. Replace module option **508** may cause the media guidance application to generate, for example, display **600**.

Display **600** is illustrated in FIG. **6**. Overlay **602** may be included in display **600**. Overlay **602** includes module options. (Similar or the same options may also be provided in response to receiving a selection of add module option **504**). The user can highlight and select any of the module options included in overlay **602**. The selection of any option in any display may cause the media guidance application to execute one or more commands. The commands may assist the user in, for example, customizing display **400** by, e.g., finding, adding and/or creating a new module based on theme of media (horror, comedy, etc.), media genre, media

type (television program, website, etc.), media source (e.g., satellite television, cable television headend, Internet, mobile telephone network, etc.), word(s) related to media, etc.

For example, in response to receiving a user selection of recommendation option **604**, the media guidance application can present to the user display **700** of FIG. **7** or display **800** of FIG. **8**. Display **700** includes tabs region **702** as well as three recommended modules, i.e., module **704**, module **706** and module **708**. Modules **704**, **706** and **708** preferably correspond with option **702**. In response to another option (which is included in, e.g., tabs region **702**) being selected, display **700** can be updated to include additional and/or different modules. For example, in response to option **710** being selected, one or more friendly recommendation modules of media can be included in display **700**.

Each module, as shown in FIG. **7**, can be associated with one or more media files. In display **700**, each media file is represented by a corresponding media listing. In response to a media listing being selected, the media file (e.g., television program, audio song, etc.) can be played back, additional information can be displayed, etc. In some instances, the association between one or more media files and a module can be automatically created by, e.g., a data service provider (such as TV Guide Online), a media guidance application implemented on user equipment, etc. In other instances, the association between one or more media files and a module can be manually configured in response to a device receiving user-inputs from the user or another person. The other person is often referred to herein as a friend, even though the other person may be a complete stranger to the user of the present invention.

In some embodiments, the automatically generated association between a module and media files can be based on, for example, usage data (e.g., television programming viewing history, website viewing history, telephone calls made by a mobile telephone, etc.), user profile data, and/or friendly profile data. A friendly profile can be generated using friendly profile data the same way a user profile can be generated based on user profile data. Like the user's relationship with user profiles discussed and incorporated by reference above, a friend (and/or an application running on a friend's user equipment) can configure and maintain a friendly profile. When dynamic data, such as usage data, is utilized, a user/friendly profile can automatically change over time. For example, a user may be an avid sports fan who likes to watch all types of sports. A person, who only likes football and has a friendly profile based on usage data, may be a seasonal friend of the user during football season. In other words, the present invention may only recommend a module associated with the friend when the friend's profile matches some aspects of the user's profile, and not during any other time of the year. This may allow the user to be introduced to new people and disassociated with others over time as the user's and friend's interests in media converge and diverge.

For example, Friend\_1 represents a friend of the user. Module **704** is illustrated as including at least four listings that Friend\_1 (or an application implemented on Friend\_1's equipment) associated with module **704**. Module **704** may be made available to the user as a recommendation after Friend\_1, e.g., published module **704** for all users or shared module **704** with one or more specific people (including the user). The specific people can be, e.g., personal friends of Friend\_1, people associated with Friend\_1's social networking website(s), people in a given chat room, people on

## 11

Friend\_1's e-mail or instant messaging buddy list(s), those who provide Friend\_1's equipment a preconfigured password (and/or username), etc.

In other embodiments, Friend\_1 may post contact information and allow one or more other people (as well as user) to introduce themselves, thereby allowing a social networking web of people to be constructed based on the media files people watch and/or interact with. As such, the present invention may allow the user to send and/or receive requests to be a friend, which would allow the media guidance application to access data (sometimes referred to as friendly data) that is associated with another person.

In other embodiments, Friend\_1 can be a theoretical person created by another user or media service provider. For example, Friend\_1 can be a hypothetical person that enjoys action movies. When, for example, the user's profile is associated with action programming, Friend\_1's action module may be recommended to the user in display 700.

The user may select module 704 and, in response, module 704 can be associated with the user's profile and/or a particular display, such as the user's dashboard (which is labeled as "My Guide" in FIG. 7). Module 704 can be associated with other user data (i.e., data associated with a particular user) using any means known by those skilled in the art (e.g., the user selecting module 704, dragging and dropping module 704 onto the user's dashboard, etc.).

The media guidance application can also present display 800 of FIG. 8 to the user. Display 800 may be presented to the user instead of display 700 or in response to receiving a different user selection. Display 800 includes overlay 802 that lists names of modules that can be associated with other user data. Each name in the list is a selectable option. For example, Friend\_1 option 804 can be selected and, in response, the corresponding module may be associated with, e.g., the user's dashboard, user profile, etc.

Overlay 802 also includes system recommendations. For example, system recommendations, like friendly recommendations, can be modules of media that each comprises one or more media files that have at least one common characteristic. The system recommendations, unlike friendly recommendations, are generated based on, e.g., a service provider's grouping of media files and not generated based on user friendly data associated with a person. Media files can be grouped based on, for example, mood, theme, genre, etc. and can be included in overlay 802. Moods and other advanced search features are discussed further in commonly assigned Ellis et al., U.S. patent Ser. No. 11/412,549, filed Apr. 27, 2006, which is incorporated herein by reference in its entirety.

FIG. 9 illustrates display 900, which the media guidance application may present to the user in response to the user selecting, for example, module 704 of FIG. 7 or option 804 of FIG. 8. Display 900 illustrates a display that may be presented after replacing, for example, On Now Module 404 of FIG. 4 with friendly module 902.

The displays discussed above are illustrated as being optimized for, e.g., user television equipment (e.g., television display screen, television remote control, television program guide application implemented on a set-top box, etc.). The following displays, including display 1000, are illustrated as being optimized for, e.g., web-based user equipment (e.g., computer display screen, mouse, keyboard, web browser application implemented on a computing device, etc.).

FIG. 10 illustrates display 1000, which is a variation of display 400 of FIG. 4. Display 1000 includes tabs region 1002, which may function the same as or similar to tabs

## 12

region 402. On Now module 1004, On Next module 1006 and Hot List module 1008 are also included in display 1000 and can be used in the same or similar manner as On Now module 404, On Next module 406 and Hot List module 408.

In addition, a user may interact with these modules and, more generally, any display in any other manner, such as those commonly used to interact with websites (e.g., search for words that may or may not be included in the display, scroll through each module independently, scroll the display down to see information that cannot fit on the screen, select links to view other displays, etc.).

Display 1000 includes a number of other modules (i.e., modules 1010, 1012, 1014 and 1016) and other display elements as well. For example, display 1000 includes searching component 1018, which can be used to search for data based on information the user enters into the text entry box of searching component 1018. Message board 1020, which may be integrated into any guide display discussed herein, can be used as an instant/text messaging service between the user and one or more other people, and/or as a portal to a chat room.

Display 1000 may be presented to the user in response to the user entering a URL into a web browser application, pressing a button on a television remote control, or by any other means. In some embodiments, another display, such as display 1100 of FIG. 11 may be presented to the user first. Display 1100 is an exemplary main menu display that may be provided by web based (or any other type of) user equipment.

Display 1100 may include a number of options, modules and/or other display components. In response to a user selection of, e.g., option 1102, the media guidance application may generate a personalized display, such as a dashboard display, for the user. The personalized display and the components included may function similar to or the same as those discussed above. Before the personalized display of FIG. 10 is presented to the user, the media guidance application may prompt the user and request authorization information.

FIG. 12 illustrates exemplary display 1200, which includes authorization overlay 1202. After the user enters a username, password, etc. into text entry box 1204 and selects icon 1206, the media guidance application will verify the authenticity of the user-entered information. If the user-entered information is verified as authentic, the media guidance application may present a personalized guide, such as display 1000, to the user. Similar authentication means may also be implemented prior to the media guidance application allowing a friend to view, edit and/or make a recommendation to the user or vice-versa. One skilled in the art would appreciate that more than one text entry box and/or more than one layer of electronic security may be utilized by the media guidance application.

After the media guidance application grants the user access to the user's personalized dashboard, the user may indicate a desire to modify the personalized display, the underlying user profile, the user account settings, etc. In some embodiments, the media guidance application will synchronize some or all of the modifications the user makes to one of the user's personalized guides (e.g., the online guide, television program guide, etc.), user profiles, etc. with one or more other personalized guides, user profiles, etc.

For example, the user may be at work and want to schedule a program for recording at home. The user can indicate a desire to log into his online media guidance application, display 1100 or display 1000 may be presented, and the user can use his online program to schedule a

## 13

program to be recorded by the user's home television equipment. The online media guidance application may then communicate to the television media guidance application and/or the user television equipment in the user's home, and send a command to the user television equipment to schedule the program for recording.

As another example, the user may change the modules included in his personalized dashboard using an online program guide, and any changes made to the user's online program guide will be synchronized with the user's television program guide. Display 1300 of FIG. 13 illustrates a display that may be presented in response to receiving a user indication of a desire to modify the user's personalized dashboard. After the user selects, for example, my guide option 1302, the media guidance application may present overlay 1304. Overlay 1304 is illustrated as including only two options, but one skilled in the art would appreciate that more or less options may be included in overlay 1304, just like any other overlay or grouping of options discussed herein. The media guidance application may determine that the user would like to modify his dashboard in response to, for example, receiving a user selection of option 1306.

FIG. 14 illustrates display 1400, which is an exemplary display that includes options the user can use to modify the user's or a friend's dashboard. For example, one or more editing options can be associated with each module that is or could be included in one or more of the user's or friend's dashboards. Modules, such as On Now Module 1402, can be associated with add, remove and recommend options. Modules, such as My Recommendations module 1404, Friend\_1 Recommendations module 1406 and Type module 1408, can be associated only with options that are only applicable to each module.

For example, in response to recommend option 1410 being selected by the user, the media guidance application may generate one or more share commands that are sent to, e.g., the service provider (and/or whichever entity or entities that maintain and/or facilitate the transfer of data among various people via their equipment and media guidance applications implemented thereon). The share command(s) may cause My Recommendations module 1404 to be made available to one or more other people. One or more distribution settings may be associated with each share command. The distribution settings control how many and which people recommendations module 1404 is made available to. The distribution settings can be automatically configured by, e.g., a service provider or manually configured by the user. In the latter case, a user may configure global distribution settings that influence all recommendations or specific distribution settings that influence one or more particular recommendations. For example, one or more additional options can be displayed (using, e.g., an overlay that is not shown) in response to the user selecting recommend option 1410. These additional options may enable the user to choose to share the corresponding module with one or more particular friends, all people, a particular group of people, etc.

An add option, such as add option 1412, can be used to associate a module with one or more user displays that the module is not already associated with. For example, in response to the user selecting add option 1412, the media guidance application can generate and present display 1500 to the user.

Display 1500 is shown in FIG. 15 and includes overlay 1502. Overlay 1502 may include one or more options that the user can select. In response to receiving a user selection of one of the options, the media guidance application may

## 14

generate one or more corresponding commands. The commands can be distributed to the proper device(s) and/or application(s). For example, the user may be interacting with their online guide and want to have a module, which a friend previously recommended to the user, associated with the user's personalized television guide. In response to selecting option 1504 included in overlay 1502, the user's online media guidance application may generate the appropriate command(s) that are sent through the online network and servers to the user's television service provider (which may or may not be the same entity as the user's Internet service provider). In response to the command(s), the television service provider can download the appropriate data to the user's television equipment. Subsequently thereafter, the user's television guidance application may include a module that corresponds with Friend\_1 Recommendations module 1406 in, for example, the user's television dashboard.

When a user would like to delete a module from a display, the user may select a remove option, such as those shown in display 15. One skilled in the art would appreciate that a single system may provide various means for carrying out the above described functions. For example, the user may select a dedicated key on a remote control while a module is highlighted on the user's dashboard and, in response, the media guidance application may present an overlay to the user to specify one or more options associated with that key selection.

FIG. 16, for example, illustrates display 1600, which includes overlay 1602. Overlay 1602 is an example of how options may be provided to the user in response to the user, e.g., double-clicking on module 1010 of FIG. 10. In this manner, displays 1400 and 1500 may be skipped if the user wants to, e.g., delete a module's association with the user's dashboard. This method may also allow the user to indicate a desire to view an edit a display, such as display 1400.

FIG. 17 illustrates display 1700, which may be displayed in response to, e.g., receiving a user indication of a desire to access a friendly data. Friendly data may be processed and displayed by a media guidance application implemented on friendly equipment into various types of user-readable information, such as friendly dashboard, friendly profile, friendly account settings, etc. (The modifier "friendly" as used herein is meant to differentiate various components, data, applications, features, etc. from the user's components, applications, features, etc.) For example, display 1700 may be displayed in response to receiving a user selection of my friends option 1104 of FIG. 11.

Display 1700 includes overlay 1702, which allows the user to enter authentication information into text entry box 1704. The authentication information can then be processed into computer-readable data and verified in response to receiving a user selection of icon 1706. In some embodiments, friends list 1708 can also be included in overlay 1702. Because the user may have to enter different authentication information for different friends, the user may first have to select which friend's data the user would like to access.

In response to the authentication information being verified, the user and/or friendly media guidance application(s) may grant the user access to the friend's data. For example, the user's media guidance application may download the friend's data and display friendly information (based on the friendly data) to the user. As another example, the user's media guidance application may act as a portal to the friend's media guidance application, thereby allowing the user to interact directly with the friendly media guidance application that is implemented on friendly equipment (as

opposed to user equipment). In this manner, the present invention can allow the user, in (near) real time, to view, configure and modify at least one other user's (i.e., friend's) past, present and future media experience. In some embodiments, the media guidance application may present the friend's data in a display, similar to those discussed above, that only includes the friend's data and not the user's data. Similarly, this may allow a friend to remotely view, configure and modify the user's media experience

FIG. 18 illustrates display 1800, which is an example of another approach, wherein both user data and friendly data is merged and processed into information, which is presented simultaneously for the user to view and interact with. One skilled in the art would appreciate that the present invention is not limited to presenting data associated with the user and one friend, and that the present invention may, for example, simultaneously present information associated with the user and a number of friends, only two friends, etc.

Display 1800 includes display components 1802 and 1804. Display component 1802 includes modules 1806, 1808 and 1810, which are associated with the user's dashboard. Additional modules may be associated with the user's dashboard and, if so, be displayed in response to bar 1812 being scrolled down. Display component 1804 includes modules 1814 and 1816, which are associated with the dashboard of a friend, named Friend\_3. Because bar 1818 indicates that modules 1814 and 1816 are near the end of the list of modules associated with Friend\_3's dashboard, additional modules may be presented in response to bar 1818 being scrolled up.

Friend\_3 may configure certain limitations on how much control the user (or another friend) may have in connection with Friend\_3's data (e.g., dashboard, module(s), profile, etc.). Friend\_3 may restrict the user and/or other people to only be able to view some or all of the information associated with Friend\_3's data. Friend\_3 may grant complete access to, e.g., only the user, thereby allowing only the user to interact with Friend\_3's modules, dashboard, profile, etc. in the same manner that the user may interact with his own modules, dashboard, profile, etc. (some of which are discussed herein). One skilled in the art would appreciate that various levels of control can be granted to individual people, groups of people, etc. and that the identification information discussed above can be used to determine how much control another person may have over Friend\_3's data.

For example, another person, Friend\_1, may have had access to Friend\_3's data and/or Friend\_3 may have had access to Friend\_1's data. Regardless of who may have granted who access, module 1816 is shown in FIG. 18 as being associated with Friend\_1 data and is now included in Friend\_3's dashboard. Assuming Friend\_3 has given the user the proper access privileges, the user may add module 1816 to the user's dashboard. As such, the present invention allows users to interact with people, who have interacted with other people, and obtain media files and recommendations from those having common interests, thereby creating interactive media communities and spawning electronic social networks based on media and other types of electronic entertainment.

The present invention, in addition to allowing a user to experience the media life of someone else, may also, for example, allow a user to take over or modify another person's media experience. In addition to all of the features above also being available to the user when modifying a friendly profile, the user may simply add user data to friendly data. For example, the user may click, drag and drop a module onto a friend's dashboard. FIG. 19A shows display

1900, which is a screenshot of the user adding the data associated with module 1902 to Friend\_3's dashboard. Module 1904, which is shown as it is being dragged onto Friend\_3's dashboard, may be a copy of module 1902. In response to, for example, module 1904 being placed (at least mostly) within the confines of display component 1906, the media guidance application may visually indicate (e.g., by changing the color or darkness of the boarder of display component 1906, displaying an overlay confirming the user's intention, etc.) that the user is about to modify (in this case add data to) Friend\_3's dashboard. If the user proceeds with the modification, module 1904 will be added to the dashboard of Friend\_3.

FIG. 19B illustrates display 1908, which may be displayed in response to the user adding module 1904 to Friend\_3's Dashboard. If Friend\_3 is viewing his dashboard (using, e.g., his television program guide) when the user adds module 1904 to Friend\_3's dashboard, Friend\_3 may see the update happen (nearly) instantaneously or after Friend\_3's user equipment is synchronized to include the changes the user made to Friend\_3's dashboard. Friend\_3's media equipment and media guidance applications may be synchronized automatically (e.g., every few minutes, after a user has remotely updated friendly data, etc.) and/or in response to the friend authorizing the user's changes to be implemented.

Modifications made by a user to friendly data may cause friendly equipment to execute various commands. Some of these commands may cause conflicts with, e.g., commands based on friendly settings or modifications made to the friendly data by other people. For example, module 1904 may be associated with commands to record a program at a time that the friendly equipment is already scheduled to record another program. These conflicts can be overcome in a number of ways, including, for example, prioritizing those who have access to the friendly data. For example, Friend\_3 may give a higher priority to any changes that the user makes than the changes Friend\_1 makes, but give Friend\_2 changes higher priority than the user's changes. Friend\_3 may also give the highest priority to settings, etc. that Friend\_3 makes or made himself. Friend\_3's media guidance application(s) can be used to monitor and maintain various priority lists and to resolve conflicts. Additional systems and methods for resolving conflicts are discussed in commonly assigned Ellis, U.S. patent application Ser. No. 10/306,175, which is incorporated herein by reference in its entirety.

Users may access their own and friendly media content and media guidance application(s) (and their display screens described above and below) from one or more of their user equipment devices. FIG. 20 shows a generalized embodiment of illustrative user equipment device 2000. User equipment device 2000 and the components described herein are considered friendly equipment when a friend uses it, when it is used to maintain friendly data and/or implement friendly media guidance applications. More specific implementations of user equipment devices are discussed below in connection with FIG. 21. User equipment device 2000 may receive media content and data via input/output (hereinafter "I/O") path 2002. I/O path 2002 may provide media content (e.g., broadcast programming, on-demand programming, Internet content, and other video or audio) and data to control circuitry 2004, which includes processing circuitry 2006 and storage 2008. Control circuitry 2004 may be used to send and receive commands, requests, and other suitable data using I/O path 2002. I/O path 2002 may connect control circuitry 2004 (and specifically processing circuitry 2006) to one or more communications paths (described below). I/O

functions may be provided by one or more of these communications paths, but are shown as a single path in FIG. 20 to avoid overcomplicating the drawing.

Control circuitry 2004 may be based on any suitable processing circuitry 2006 such as processing circuitry based on one or more microprocessors, microcontrollers, digital signal processors, programmable logic devices, etc. In some embodiments, control circuitry 2004 executes instructions for a media guidance application stored in memory (i.e., storage 2008). In client-server based embodiments, control circuitry 2004 may include communications circuitry suitable for communicating with a guidance application server or other networks or servers. Communications circuitry may include a cable modem, an integrated services digital network (ISDN) modem, a digital subscriber line (DSL) modem, a telephone modem, or a wireless modem for communications with other equipment. Such communications may involve the Internet or any other suitable communications networks or paths (which is described in more detail in connection with FIG. 21). In addition, communications circuitry may include circuitry that enables peer-to-peer communication of user equipment devices, or communication of user equipment devices in locations remote from each other (described in more detail below).

Memory (e.g., random-access memory, read-only memory, or any other suitable memory), hard drives, optical drives, or any other suitable fixed or removable storage devices (e.g., DVD recorder, CD recorder, video cassette recorder, or other suitable recording device) may be provided as storage 2008 that is part of control circuitry 2004. Storage 2008 may include one or more of the above types of storage devices. For example, user equipment device 2000 may include a hard drive for a DVR (sometimes called a personal video recorder, or PVR) and a DVD recorder as a secondary storage device. Storage 2008 may be used to store various types of media described herein and guidance application data, including program information, guidance application settings, user preferences or profile information, or other data used in operating the guidance application. Non-volatile memory may also be used (e.g., to launch a boot-up routine and other instructions).

Control circuitry 2004 may include video generating circuitry and tuning circuitry, such as one or more analog tuners, one or more MPEG-2 decoders or other digital decoding circuitry, high-definition tuners, or any other suitable tuning or video circuits or combinations of such circuits. Encoding circuitry (e.g., for converting over-the-air, analog, or digital signals to MPEG signals for storage) may also be provided. Control circuitry 2004 may also include scaler circuitry for upconverting and downconverting media into the preferred output format of the user equipment 2000. Circuitry 2004 may also include digital-to-analog converter circuitry and analog-to-digital converter circuitry for converting between digital and analog signals. The tuning and encoding circuitry may be used by the user equipment to receive and to display, to play, or to record media content. The tuning and encoding circuitry may also be used to receive guidance data. The circuitry described herein, including for example, the tuning, video generating, encoding, decoding, scaler, and analog/digital circuitry, may be implemented using software running on one or more general purpose or specialized processors. Multiple tuners may be provided to handle simultaneous tuning functions (e.g., watch and record functions, picture-in-picture (PIP) functions, multiple-tuner recording, etc.). If storage 2008 is provided as a separate device from user equipment 2000, the

tuning and encoding circuitry (including multiple tuners) may be associated with storage 2008.

A user may control the control circuitry 2004 using user input interface 2010. User input interface 2010 may be any suitable user interface, such as a remote control, mouse, trackball, keypad, keyboard, touch screen, touch pad, stylus input, joystick, voice recognition interface, or other user input interfaces. Display 2012 may be provided as a stand-alone device or integrated with other elements of user equipment device 2000. Display 2012 may be one or more of a monitor, a television, a liquid crystal display (LCD) for a mobile device, or any other suitable equipment for displaying visual images. In some embodiments, display 2012 may be HDTV-capable. Speakers 2014 may be provided as integrated with other elements of user equipment device 2000 or may be stand-alone units. The audio component of videos and other media content displayed on display 2012 may be played through speakers 2014. In some embodiments, the audio may be distributed to a receiver (not shown), which processes and outputs the audio via speakers 2014.

User equipment device 2000 of FIG. 20 can be implemented in system 2100 of FIG. 21 as user television equipment 2102, user computer equipment 2104, wireless user communications device 2106, or any other type of user equipment suitable for accessing media, such as a non-portable gaming machine. Friendly equipment 2108 may also be any type of equipment suitable for accessing media. The only difference between friendly equipment 2108 and the aforementioned user equipment is that friendly equipment 2108 is used by a friend instead of the user. For simplicity, these devices may be referred to herein collectively as user and friendly equipment or user and friendly equipment devices. User and friendly equipment devices, on which a media guidance application is implemented, may function as a standalone device or may be part of a network of devices. Various network configurations of devices, including those that link people together may be implemented and are discussed in more detail below.

User television equipment 2102 may include a set-top box, an integrated receiver decoder (IRD) for handling satellite television, a television set, a digital storage device, a DVD recorder, a video-cassette recorder (VCR), a local media server, or other user television equipment. One or more of these devices may be integrated to be a single device, if desired. User computer equipment 2104 may include a PC, a laptop, a tablet, a WEBTV™ box, a personal computer television (PC/TV), a PC media server, a PC media center, or other user computer equipment. WEBTV is a trademark owned by Microsoft Corp. Wireless user communications device 2106 may include PDAs, a mobile telephone, a portable video player, a portable music player, a portable gaming machine, or other wireless devices.

It should be noted that with the advent of television tuner cards for PC's, WEBTV™, and the integration of video into other user equipment devices, the lines have become blurred when trying to classify a device as one of the above devices. In fact, each of user television equipment 2102, user computer equipment 2104, and wireless user communications device 2106 may utilize at least some of the system features described above in connection with FIG. 20 and, as a result, include flexibility with respect to the type of media content available on the device. For example, user television equipment 2102 may be Internet-enabled allowing for access to Internet content, while user computer equipment 2104 may include a tuner allowing for access to television programming. The media guidance application may also have the

same layout on the various different types of user equipment or may be tailored to the display capabilities of the user equipment. For example, on user computer equipment, the guidance application may be provided as a web site accessed by a web browser. In another example, the guidance application may be scaled down for wireless user communications devices.

In system **2100**, there is typically more than one of each type of user equipment device but only one of each is shown in FIG. **21** to avoid overcomplicating the drawing. Similarly, there is typically a number of friendly equipment in any given network, but only one friendly equipment **2108** is shown in FIG. **21** to avoid overcomplicating the drawing. In addition, each user or friend may utilize more than one type of user equipment device (e.g., a user may have a television set and a computer) and also more than one of each type of user equipment device (e.g., a user may have a PDA and a mobile telephone and/or multiple television sets).

The user, like everybody else, may also set various settings to maintain consistent media guidance application settings across in-home devices and remote devices. Settings can be saved as user data and include those described above and below, as well as channel and program favorites, programming preferences that the guidance application utilizes to make programming recommendations, display preferences, and other desirable guidance settings. For example, if a user sets a channel as a favorite on, for example, the web site [www.tvguide.com](http://www.tvguide.com) on their personal computer at their office, all of the user's equipment would be synchronized and the same channel would appear as a favorite on the user's in-home devices (e.g., user television equipment and user computer equipment) as well as the user's mobile devices, if desired. Therefore, changes made on one user and friendly equipment device can change the guidance experience on another user and friendly equipment device, regardless of whether they are the same or a different type of user and friendly equipment device. In addition, the changes made may be based on settings input by a user or a friend, as well as user activity and friendly activity monitored by the guidance application(s).

The user and friendly equipment devices may be coupled to communications network **2118**. Namely, user television equipment **2102**, user computer equipment **2104**, wireless user communications device **2106**, and friendly equipment **2108** are coupled to communications network **2118** via communications paths **2110**, **2112**, **2114**, and **2116**, respectively. Communications network **2118** may be one or more networks including the Internet, a mobile phone network, mobile device (e.g., BLACKBERRY™) network, cable network, public switched telephone network, or other types of communications network or combinations of communications networks. BLACKBERRY™ is a service mark owned by Research In Motion Limited Corp. Paths **2110**, **2112**, **2114**, and **2116** may separately or together include one or more communications paths, such as, a satellite path, a fiber-optic path, a cable path, a path that supports Internet communications (e.g., IPTV), free-space connections (e.g., for broadcast or other wireless signals), or any other suitable wired or wireless communications path or combination of such paths. Path **2114** is drawn with dotted lines to indicate that in the exemplary embodiment shown in FIG. **21** it is a wireless path and paths **2110**, **2112** and **2116** are drawn as solid lines to indicate they are wired paths (although these paths may be wireless paths, if desired). Communications with the user and friendly equipment devices may be pro-

vided by one or more of these communications paths, but are shown as a single path in FIG. **21** to avoid overcomplicating the drawing.

Although communications paths are not drawn between user and/or friendly equipment devices, these devices may communicate directly with each other via communication paths, such as those described above in connection with paths **2110**, **2112**, **2114**, and **2116**, as well as other short-range point-to-point communication paths, such as USB cables, IEEE 1394 cables, wireless paths (e.g., BLUETOOTH™, infrared, IEEE 802-11x, etc.), or other short-range communication via wired or wireless paths. BLUETOOTH™ is a certification mark owned by Bluetooth SIG, INC. The user and friendly equipment devices may also communicate with each other directly through an indirect path via communications network **2118**.

System **2100** includes media content source **2120** and media guidance data source **2122** coupled to communications network **2118** via communication paths **2124** and **2126**, respectively. Paths **2124** and **2126** may include any of the communication paths described above in connection with paths **2110**, **2112**, **2114**, and **2116**. Communications with the media content source **2120** and media guidance data source **2122** may be exchanged over one or more communications paths, but are shown as a single path in FIG. **21** to avoid overcomplicating the drawing. In addition, there may be more than one of each of media content source **2120** and media guidance data source **2122**, but only one of each is shown in FIG. **21** to avoid overcomplicating the drawing. (The different types of each of these sources are discussed below.) If desired, media content source **2120** and media guidance data source **2122** may be integrated as one source device. Although communications between sources **2120** and **2122** with user and friendly equipment devices **2102**, **2104**, **2106** and **2108** are shown as through communications network **2118**, in some embodiments, sources **2120** and **2122** may communicate directly with user and friendly equipment devices **2102**, **2104**, **2106** and **2108** via communication paths (not shown) such as those described above in connection with paths **2110**, **2112**, **2114**, and **2116**.

Media content source **2120** may include one or more types of media distribution equipment including a television distribution facility, cable system headend, satellite distribution facility, programming sources (e.g., television broadcasters, such as NBC™, ABC™, HBO™, etc.), intermediate distribution facilities and/or servers, Internet providers, on-demand media servers, and other media content providers. NBC™ is a trademark owned by the National Broadcasting Company, Inc., ABC™ is a trademark owned by the ABC, INC., and HBO™ is a trademark owned by the Home Box Office, Inc. Media content source **2120** may be the originator of media content (e.g., a television broadcaster, a Webcast provider, etc.) or may not be the originator of media content (e.g., an on-demand media content provider, an Internet provider of video content of broadcast programs for downloading, etc.). Media content source **2120** may include cable sources, satellite providers, on-demand providers, Internet providers, or other providers of media content. Media content source **2120** may also include a remote media server used to store different types of media content (including video content selected by a user), in a location remote from any of the user and/or friendly equipment devices. Systems and methods for remote storage of media content, and providing remotely stored media content to user equipment are discussed in greater detail in connection with Ellis et al.,

U.S. patent application Ser. No. 09/332,244, filed Jun. 11, 1999, which is hereby incorporated by reference herein in its entirety.

Media guidance data source **2122** may provide media guidance data, such as media listings, media-related information (e.g., broadcast times, broadcast channels, media titles, media descriptions, ratings information (e.g., parental control ratings, critic's ratings, etc.), genre or category information, actor information, logo data for broadcasters' or providers' logos, etc.), media format (e.g., standard definition, high definition, etc.), advertisement information (e.g., text, images, media clips, etc.), on-demand information, and any other type of guidance data that is helpful for a user and other people to navigate among and locate desired media selections.

Media guidance application data may be provided to the user and friendly equipment devices using any suitable approach. In some embodiments, the guidance application may be a stand-alone interactive television program guide that receives program guide data via a data feed (e.g., a continuous feed, trickle feed, or data in the vertical blanking interval of a channel). Program schedule data and other guidance data may be provided to the user and friendly equipment on a television channel sideband, in the vertical blanking interval of a television channel, using an in-band digital signal, using an out-of-band digital signal, or by any other suitable data transmission technique. Program schedule data and other guidance data may be provided to user and friendly equipment on multiple analog or digital television channels. Program schedule data and other guidance data may be provided to the user and friendly equipment with any suitable frequency (e.g., continuously, daily, a user-specified period of time, a system-specified period of time, in response to a request from user equipment, etc.). In some approaches, guidance data from media guidance data source **2122** may be provided to users' and friends' equipment using a client-server approach. For example, a guidance application client residing on the user's and/or friends' equipment may initiate sessions with source **2122** to obtain guidance data when needed. Media guidance data source **2122** may provide user and friendly equipment devices **2102**, **2104**, **2106** and **2108** the media guidance application itself or software updates for the media guidance application.

Media guidance applications may be, for example, stand-alone applications implemented on user and friendly equipment devices. In other embodiments, media guidance applications may be client-server applications where only the client resides on the user equipment device. For example, media guidance applications may be implemented partially as a client application on control circuitry **2004** of user equipment device **2000** and partially on a remote server as a server application (e.g., media guidance data source **2122**). The guidance application displays may be generated by the media guidance data source **2122** and transmitted to the user and friendly equipment devices. The media guidance data source **2122** may also transmit data for storage on the user and friendly equipment, which then generates the guidance application displays based on instructions processed by control circuitry.

Media guidance system **2100** is intended to illustrate a number of approaches, or network configurations, by which user and friendly equipment devices and sources of media content and guidance data may communicate with each other for the purpose of accessing media and providing media guidance. The present invention may be applied in any one or a subset of these approaches, or in a system

employing other approaches for delivering media and providing media guidance. The following three approaches provide specific illustrations of the generalized example of FIG. **21**.

In one approach, user equipment devices may communicate with each other within a home network. User equipment devices can communicate with each other directly via short-range point-to-point communication schemes described above, via indirect paths through a hub or other similar device provided on a home network, or via communications network **2118**. Each of the multiple individuals in a single home may operate different user equipment devices on the home network. As a result, it may be desirable for various media guidance information or settings to be communicated between the different user equipment devices. For example, it may be desirable for users to synchronize and maintain consistent media guidance application settings on different user equipment devices within a home network, as described in greater detail in Ellis et al., U.S. patent application Ser. No. 11/179,410, filed Jul. 11, 2005. Different types of user equipment devices in a home network may also communicate with each other to transmit media content. For example, a user may transmit media content from user computer equipment to a portable video player or portable music player.

In a second approach, users may have multiple types of user equipment by which they access media content and obtain media guidance. For example, some users may have home networks that are accessed by in-home and mobile devices. Users may control in-home devices via a media guidance application implemented on a remote device. For example, users may access an online media guidance application on a website via a personal computer at their office, or a mobile device such as a PDA or web-enabled mobile telephone. The user may set various settings (e.g., recordings, reminders, or other settings) on the online guidance application to control the user's in-home equipment. The online guide may control the user's equipment directly, or by communicating with a media guidance application on the user's in-home equipment. Various systems and methods for user equipment devices communicating, where the user equipment devices are in locations remote from each other, is discussed in, for example, Ellis et al., U.S. patent application Ser. No. 10/927,814, filed Aug. 26, 2004, which is hereby incorporated by reference herein in its entirety.

In a third approach, users of user equipment devices inside and outside a home can use their media guidance application to communicate directly with media content source **2120** to access media content. Specifically, within a home, users of user television equipment **2104** and user computer equipment **2106** may access the media guidance application to navigate among and locate desirable media content. Users may also access the media guidance application outside of the home using wireless user communications devices **2106** to navigate among and locate desirable media content.

Further to the discussion above, exemplary methods for utilizing user and friendly data are discussed below. FIG. **22** shows process **2200**, which can be used to search for friendly data and modify user data when appropriate.

Process **2200** starts at step **2202**. User data is generated at step **2204** by, for example, a media guidance application implemented on user equipment. User data may include any type of computer-readable data related to the user. For example, user data may include user profile data (i.e., data associated with the user's media profile(s)), user account data (i.e., data that a service provider uses to identify a user

and what media and/or services the user is entitled to receive), authorization data, and any other user-specific data. The user data can be subdivided into one or more data files and formatted in any number of ways. The user data may be used by any type of device, apparatus, system and/or application. User data, like any other data discussed herein, may be stored on a computer-readable medium and include executable commands (such as at least one, e.g., search command, share command, record command, remind command, delete command, etc.). The executable commands may be conditional and require, for example, a particular condition (e.g., time and day of week) to be met before being executed.

User data can be generated automatically by, e.g., user equipment, friendly equipment, a media content source, a media data source, any other device or apparatus, an application implemented on any such device or apparatus, or any combination thereof. User data can also be generated in response to a manual input by the user or a friend. As discussed above, the user and/or friend may have to be identified before the present invention will allow the user or friend to generate user data. One skilled in the art would appreciate that friendly data is the same as user data, except friendly data is associated with a friend and not the user.

At step **2206** the user data is accessed by an electronic device or application. The electronic device or application may be accessing user data in response to, e.g., a user request, an automatically generated executable command, or a condition of previously generated executable command being met. For example, a remote server may access the user data that was generated and/or stored on a storage device included in user equipment. As another example, user equipment may access user data stored on the same or other user equipment.

Process **2200** advances to step **2208**, where the system determines whether the user data includes a search command that needs to be executed. A search command is an executable command that may or may not be conditional. A search command may be automatically generated or generated in response to a user input and, if a non-conditional search command has not yet been executed, should be executed. For example, the user may select a module on the user's dashboard and indicate that he would like the system to search for similar modules. Such a user input, would cause the system to generate a non-conditional search command that needs to be executed. A conditional search command may be based on, for example, dynamic data (which is discussed above) and need to be executed if the dynamic data changes. A conditional search command should only be executed when the condition(s) are satisfied.

Process **2200** proceeds to step **2210** in response to the system of the present invention (e.g., media guidance application) determining that there is a search command that needs to be executed. At step **2210** a media guidance application generates search criteria (which may be based on and/or include user data associated with the search command).

At step **2212** the system of the present invention searches for friendly data that matches the search criteria. One or more media guidance applications implemented on user and/or friendly user equipment as well as other applications implemented on one or more media content sources and/or media guidance sources can be used to search for friendly data. For example, the user media guidance application may distribute the search criteria to a number of friendly media guidance application and let each friendly media guidance applications search its respective friendly equipment for

friendly data that matches the search criteria. As another example, all media guidance applications may upload all user data and friendly data to one or more central servers (such as, e.g., media guidance data sources) that each has one or more applications running that can search for friendly data that matches the search criteria.

At step **2214** the user's media guidance application determines whether or not there is any friendly data that matches the search criteria. Process **2200** proceeds to step **2216** in response to the user's media guidance application determining that there is friendly data that matches the search criteria.

At step **2216** the matching friendly data is compiled into search results. The search results may be data that can be displayed to the user after being, for example, processed into lists of information, modules of media, etc.

At step **2218** the user data is updated based on the search results. The updates are saved and may include substantive modifications (additions and deletions) to the user data that effect, for example, a conditional executable command or information included in a display that is presented to the user. For example, the user data may include a dynamic parental control setting that blocks any friendly data that is inappropriate for children. If the search results no longer include a friend's recommendations because the friend's recommendations are now inappropriate for children, then that friend's recommendations will be automatically removed from the user data. The updates may also include non-substantive changes to the user data. Non-substantive changes may comprise, for example, time stamps of when the search command was executed, when the search was completed, as well as other types of data that do not trigger executable commands or influence the information included in any display screen.

Process **2200** then returns to step **2208**. A determination is made at step **2208** as to whether or not the updated user data includes a search command that needs to be executed. When there is such a search command in the updated user data, the process proceeds to step **2208** as discussed above. If not, process **2200** advances to step **2220**.

At step **2220** the system waits for a search command that needs to be executed. Step **2220** may also follow step **2214** when, at step **2214**, the system determines there is not any friendly data that matches the search criteria. One skilled in the art would appreciate that additional steps and/or displays may be included in the process and, e.g., the user may be notified there is not any friendly data that matches the search criteria.

While the system is waiting for such a search command, the system may be powered OFF. When the system is powered OFF, process **2200** ends at step **2224**. When the system remains ON, the system may continue to access the user data in the event that a search command is triggered.

FIGS. **23A** and **23B** show process **2300**, which is an exemplary method of allowing a friend to modify user data. One skilled in the art would appreciate that a similar or the same process could enable the user to modify friendly data.

Process **2300** begins at step **2302** and at step **2304** user data is generated. User data may be generated by, e.g., a media guidance application or central server in response to a user input, friendly input or system generated command.

At step **2306** a determination is made as to whether or not one or more friends may be allowed to access the user data. A media guidance application may be configured to, for example, make some or all user data available to all people (by, e.g., publishing to a public website, etc.), only some people (by, e.g., requiring a username and/or password be entered, etc.), etc.

When one or more friends are going to be able to access the user data, process **2300** advances to step **2308**. At step **2308** authorization data is generated. The authorization data may allow, for example, the authorized person or people (which may be everybody) to access the user data.

At step **2310** the system maintains the user data (which may include transferring user data from user equipment to other equipment, synchronizing the authorization data, etc.) on one or more storage devices that are accessible by friendly equipment. For example, the user data may be uploaded to one or more central servers that friendly equipment have access to. As another example, the user data may be copied directly onto one or more pieces of friendly equipment (e.g., those having IP addresses included in the authorization data).

At step **2312** a request originating from friendly equipment for user data is received by the system and at step **2314** the system determines whether further authorization is required. Further authorization may be required by the authorization data depending on, for example, the device from which the request originated, the particular user data requested, etc.

In response to the system determining that additional authorization data is required, process **2300** proceeds to step **2316**, at which the system sends a request to the friendly equipment for the additional authorization data.

At step **2318** the friendly equipment prompts the friend to input information that can be processed into data, which satisfies the required authorization data. At step **2320** the system receives from the friendly equipment data that corresponds to the friendly input.

The system determines at step **2322** whether or not the friendly input corresponds with data that satisfies the authorization data. At step **2324** the friend is denied access to the user data if the friendly input data fails to satisfy the authorization data and process **2300** ends at step **2326**.

In response to the system determining at step **2322** that the friendly input data matches or otherwise satisfies the requirements of the authorization data, process **2300** proceeds to step **2328**. At step **2328** a display is generated (which may be similar to or the same as display **1800** of FIG. **18**) that includes information associated with user data. The display may be generated by, e.g., friendly equipment or by another electronic device and uploaded to the friendly equipment.

At step **2330** the friendly equipment presents the display to a friend and at step **2332** the system waits to receive a modification command. At step **2334** the system determines whether or not a modification command is received. If a modification command is not received, the system determines at step **2336** whether or not the friend is still interacting with the display. The friend may be, for example, just viewing the display and not modifying it, and process **2300** will return to step **2332**. When the system determines at step **2336** that the friend has stopped interacting with the display (e.g., the display timed-out, a screen saver has been activated, the program guide was closed, the friendly equipment has sent a signal to the system, etc.), process **2300** proceeds to step **2326** and ends.

When the system determines at step **2334** that it has received a modification command (e.g., a command that may modify the user data), process **2300** proceeds to step **2338**. At step **2338** the system determines whether or not the friend and/or friendly equipment is authorized to modify the user data as required by the modification command. If not, step **2340** is next in process **2300**, at which the friend is

informed (via, e.g., a display presented on user equipment) that the friend is not authorized to make the requested modification.

Step **2342** will follow step **2338** when the friend is authorized to modify the user data as required by the modification command. At step **2342** the user data is modified (by, e.g., the system or the friendly equipment) based on the modification command.

At step **2344** the user data, as modified, is synchronized with the user data stored on the user equipment, thereby updating the user data on the user equipment accordingly. If the user happens to be interacting with the user equipment when the synchronization occurs, the user may be able to see the changes to, for example, the user profile, recordings list, etc. In other embodiments, the user may be prompted to approve the modifications to the user data before the modifications are finalized.

At step **2346** a determination is made as to whether or not the modification command comprises a new system command. A system command may include a recording command, a series recording command, a reminder command, a delete command, an order command (for movies and/or additional services), or any other command that causes or will cause the user equipment or central server to coordinate various pieces of hardware (e.g., a digital storage device, a television display, On-Demand server, web camera, etc.). If the modification command lacks a new system command (because, e.g., the system command was previously set, or there was no system command associated with the modification command), process **2300** returns to step **2328** and a display is generated based on the modified user data.

Process **2300** advances to step **2348** when the modification command comprises a new system command. At step **2348** the user equipment or application implemented thereon is provided the system command.

At step **2350** the user equipment or an application implemented thereon determines whether or not the new system command creates a conflict with any previously configured system commands. If not, the user equipment or an application implemented thereon executes at step **2352** the new system command and process **2300** then proceeds to step **2328** (discussed above).

When the user equipment or application determines at step **2350** that the new system command creates a conflict with a previous configured system command, a notification is presented to the user. If the user is not using the user equipment at the time, the notification can be queued for the user to view in the future. Process **2300** then proceeds to step **2356** and resolves the conflict as discussed above in connection with, e.g., FIG. **19B**.

The processes discussed above are intended to be illustrative and not limiting. One skilled in the art would appreciate that steps of the processes discussed herein may be omitted, modified, combined, and/or rearranged, and any additional steps may be performed without departing from the scope of the invention. More generally, the above disclosure is meant to be exemplary and not limiting. Only the claims that follow are meant to set bounds as to what the present invention includes.

What is claimed is:

1. A method comprising:
  - generating for display an identification of a first set of recommended media content based on a user profile, wherein the first set of recommended media content was generated by a recommendation system for a first user associated with the user profile;

generating for display a friends list, wherein the friends list identifies a plurality of friend users with whom the first user has exchanged friend requests;

receiving a selection of a friend user among the plurality of friend users from the friends list, wherein the user profile remains unmodified in response to receiving the selection;

retrieving from the recommendation system an identification of a second set of recommended media content based on a profile of the selected friend user, wherein the second set of recommended media content was previously generated by the recommendation system for the selected friend user and wherein the second set of recommended media content was previously generated for display on a display of a device associated with the selected friend user; and

responsive to receiving the selection of the friend user, modifying the display of the identification of the first set of recommended media content to simultaneously include both: (a) the identification of the first set of recommended media content based on the unmodified user profile, wherein the first set of recommended media content was generated by the recommendation system for the first user associated with the user profile, and (b) the identification of the second set of recommended media content based on the profile of the selected friend user, wherein the second set of recommended media content was previously generated by the recommendation system for the selected friend user and wherein the second set of recommended media content was previously generated for display on the display of the device associated with the selected friend user.

2. The method of claim 1 wherein the friends list is displayed on an overlay interface.

3. The method of claim 1 further comprising generating for display a group of identifications of media content for recommendation based on mood, theme, genre, or combinations thereof.

4. The method of claim 1 further comprising generating for display an identification of recommended media content provided by a data service provider.

5. The method of claim 1 further comprising comparing the user profile with a profile of each of the plurality of friend users.

6. The method of claim 5 further comprising:  
retrieving an identification of recommended media content based on a match of the user profile with the profile of one of the plurality of friend users; and  
generating for display the identification of recommended media content of the matched friend profile.

7. The method of claim 1 wherein the user profile comprises historical viewing data of the first user.

8. The method of claim 7 further comprising updating the historical viewing data of the first user in response to determining that the first user has viewed at least a portion of the first set of recommended media content based on the user profile.

9. The method of claim 7 further comprising updating the historical viewing data of the first user in response to determining that the first user has viewed at least a portion of the second set of recommended media content based on the profile of the selected friend user.

10. The method of claim 1 wherein the plurality of friend users are at least one of a personal friend user of the first user, a friend user on a social networking website that the first user subscribes to, a person in a chat room with the first user, a person on the first user's address book, a person on

the first user's instant messaging buddy list, and a person who has provided the first user a preconfigured login credential.

11. The method of claim 1,  
wherein the modified display of the identification of the first set of recommended media content is displayed on a dashboard of a user device associated with the first user.

12. The method of claim 1, wherein the retrieving from the recommendation system the identification the second set of recommended media content based on the profile of the selected friend user is performed without any selection of topics from the profile of the selected friend user.

13. The method of claim 1, wherein modifying the display of the identification of the first set of recommended media content further comprises simultaneously including: (a) a viewing history associated with the user profile, (b) scheduled recordings associated with the user profile, (c) a viewing history associated with the profile of the selected friend user, and (d) scheduled recordings associated with the profile of the selected friend user.

14. A system comprising:  
a control circuitry configured to:  
generate for display an identification of a first set of recommended media content based on a user profile, wherein the first set of recommended media content was generated by a recommendation system for a first user associated with the user profile;  
generate for display a friends list, wherein the friend list identifies a plurality of friend users with whom the first user has exchanged friend requests;  
receive a selection of a friend user among the plurality of friend users from the friends list, wherein the user profile remains unmodified in response to receiving the selection;  
retrieve from the recommendation system an identification of a second set of recommended media content based on a profile of the selected friend user, wherein the second set of recommended media content was previously generated by the recommendation system for the selected friend user and wherein the second set of recommended media content was previously generated for display on a display of a device associated with the selected friend user; and  
responsive to receiving the selection of the friend user, modify the display of the identification of the first set of recommended media content to simultaneously include both: (a) the identification of the first set of recommended media content based on the unmodified user profile, wherein the first set of recommended media content was generated by the recommendation system for the first user associated with the user profile, and (b) the identification of the second set of recommended media content based on the profile of the selected friend user, wherein the second set of recommended media content was previously generated by the recommendation system for the selected friend user and wherein the second set of recommended media content was previously generated for display on the display of the device associated with the selected friend user.

15. The system of claim 14 wherein the control circuitry is further configured to generate for display a group of identifications of media content for recommendation based on mood, theme, genre, or combinations thereof.

29

16. The system of claim 14 wherein the control circuitry is further configured to generate for display an identification of recommended media content provided by a data service provider.

17. The system of claim 14 wherein the control circuitry is further configured to:

compare the user profile with a profile of each of the plurality of friend users;  
 retrieve an identification of recommended media content based on a match of the user profile with the profile of one of the plurality of friend users; and  
 generate for display the identification of recommended media content of the matched friend profile.

18. The system of claim 14 wherein the user profile comprises historical viewing data of the first user.

19. The system of claim 18 wherein the control circuitry is further configured to update the historical viewing data of the first user in response to determining that the first user has

30

viewed at least a portion of the first set of recommended media content based on the user profile.

20. The system of claim 18 wherein the control circuitry is further configured to update the historical viewing data of the first user in response to determining that the first user has viewed at least a portion of the second set of recommended media content based on the profile of the selected friend user.

21. The system of claim 14 wherein the plurality of friend users are at least one of a personal friend user of the first user, a friend user on a social networking website that the first user subscribes to, a person in a chat room with the first user, a person on the first user's address book, a person on the first user's instant messaging buddy list, and a person who has provided the first user a preconfigured login credential.

\* \* \* \* \*